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REMARKS

On the SECOND PART of

The Lord Bishop of CLOGHER's

Vindication of the Histories of the Old and New Testament;

Chiefly, with respect

To his Lordship's interpretation of the *Mosaic* account of the

CREATION and DELUGE.

IN TWO PARTS.

Part the First;

Wherein his Lordship's explication of the Scripture account of the CREATION and FORMATION of this material World is examined, and refuted; and the *true explanation* given

By ALEXANDER CATCOTT, A. B.

With two explanatory COPPER-PLATES; one representing the Cause and Manner of the motion of the Earth on its axis and in its orbit; the other, the State of the Earth and Air on the *second day* of the *Creation*.

L O N D O N:

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MDCCLVI.



TO THE
RIGHT REVEREND
THE
LORD BISHOP
OF
CLOGHER.

MY LORD,

I Can assure your Lordship that it is with all due respect to the sacred Character you bear, that I have presumed to dedicate the following sheets to You. As by publishing your *Vindication of the Histories of the Old and New Testament, &c.* you gave the sole occasion to the writing and printing this Treatise, so I really knew not to whom it was so peculiarly due as Yourself; Especially, as I have some things in particular to address to You.

When I first read the title-page of your book, my curiosity was greatly raised to know the contents; as the subjects, proposed to be treated on, had frequently engaged my attention. This curiosity ripened into great expectation, when I considered your Lordship, as a Christian Bishop; writing for the instruction of a young Noble-

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man ; and assuring your readers, in the second page of your work, ‘ That you had spent much time in the contemplation of the Subjects, as well from a sense of Duty, as being led thereto by the bent of your own natural Inclination.’ All these considerations were yet heightened, when I found that You proposed not only to examine the different opinions of several writers upon the subject ; but also to confute them, and establish your own.

And, I can assure your Lordship, I was prepared to lay down any pre-conceived notions I had formed, either from books or observation, provided you had proved such to have been contrary to the WORD or the WORKS of GOD. But when I had carefully perused your Treatise, I must own, I did not find that fidelity in giving other Author’s opinions, that judgment in interpreting Scripture, or that exactness in bringing natural Observations to confirm your own Sentiments, which I had expected. And as I knew not how far your Lordship’s Station in life, your character as a Divine, Philosopher, and Gentleman might have affected some kind of persons, and been the cause of their continuing in errors by relying on your arguments, I thought proper to lay before the public some REMARKS on *such parts* of your book as appeared to me *justly exceptionable*.

I was further prevailed upon to do this from a consideration of the very nature and intent of your Treatise; which being designed to be a *Vindication of the Scriptures* from the objections and

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attacks of infidels ought to have been written with great care and judgment, least Truth should suffer through an injudicious defence, and the cause of Christianity be weakened, rather than supported, by arguments that are not valid. *In fighting the battles of the Lord or contending earnestly for the Faith* we should be very cautious of what weapons we make use of ourselves, and especially of what we deliver to our Friends, lest by putting arms in their hands, we induce them to enter the field, and in the attack the untempered steel give way, and themselves perish, and the cause they supported suffer through our indiscretion.

Such were the reasons which induced me to write, and I hope I have wrote in such a manner; as to give your Lordship no just cause of offence at my stile or expressions. I well know how difficult it is to avoid giving offence in a controversial discourse, and how apt human Nature is to imagine an affront, where none is intended. Especially too, is this difficulty increased in the present age, when a feigned Charity and a false Zeal have usurped the places of the true; so that it will be scarcely possible for an inferior to oppose his superior, without being deemed guilty of passion, prejudice, or ill-manners. But I trust, my Lord, you will have no reason for imagining the author of this Treatise to be influenced by any such principles: And to cut off all real suspicion of it, he has, wherever he possibly could, made use of your own words,—those very expressions which You Yourself have applied to the

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gentlemen you write against,—in those places where he thought proper to remark upon You. And tho' he has been thus careful to pay You all due respect, yet he hopes, it will be remembered, that there is a reverence due to TRUTH, as well as to PERSONS: If therefore, where *material Truths* are concerned, he expresses himself in such a manner, as one influenced by the love of Truth, would naturally speak, he desires that such expressions may be attributed to their real motive, not to any designed personal affront, which he would not willingly shew any man living.

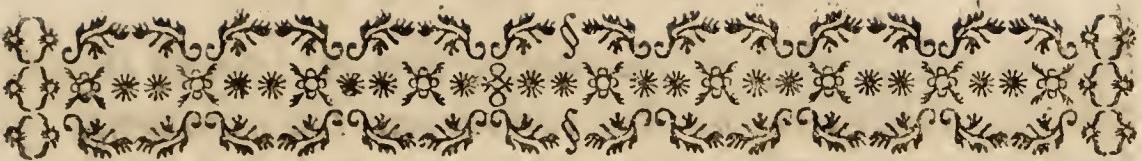
If, after a diligent perusal of this Treatise, your Lordship should apprehend that I have made any material mistakes, and you will be so kind as to point out what you imagine to be such, I shall, if I can really allow them to be so, readily retract my own opinion, and embrace yours; and shall esteem your so doing to be as great a favour as You can shew to

Your LORDSHIP's most obedient,

And dutiful Servant,

BRISTOL,
Jan. 1, 1756.

The AUTHOR.



T H E

P R E F A C E.

THE Treatise, which gave occasion to the following Remarks, being written for the instruction of a young Nobleman, and therefore penned in the plainest manner; the Author of this has likewise adapted his discourse to the capacity of such a beginner in philosophy: And he took this method, not only on the above account; but because now-a-days almost every one who pretends to any knowledge at all, lays claim to it in Natural Philosophy. And Truth, he apprehends, should be common, and known to all. He has therefore endeavoured to explain, in the clearest manner he could, the Mosaic account of the CREATION and FORMATION of this world, and by this means to display before his reader the true System of Natural Philosophy.

As He has made the WORD OF GOD the Standard of his opinion, so the reader must not be surprised if he finds no implicit respect paid to the bare name or authority of any human writer whatever, but that the Author sometimes assents with This, sometimes with That, sometimes agrees or disagrees with the same person, as he judges him to be consonant to, or dissonant from Scripture, Reason, or Fact. And yet, in some cases, lest it should be thought

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that he wholly despises Authority, and is desirous of advancing Novelties, he has introduced the sentiments of several learned and judicious writers, and chose to speak in their words rather than his own. And had a Book, just printed, entitled An Enquiry after Philosophy and Theology, &c. came to his hands, before the finishing of this, he should have made some quotations from it, but he hopes the reader will supply this loss by perusing the whole, which in many respects he will find well worth his while.

Some points in the following Treatise are more amply discussed than a bare Answer to the book it is written against required, because such points seemed to the Author to be material, are commonly received as true, tho' in reality false.

All that is now requested of the reader, is, to peruse this Tract with the same candour and ingenuity with which it is written, and to take no person's judgment of it, but fairly and impartially to examine it himself.





T H E

C O N T E N T S.

- O F the several Authors, that his Lordship's Subject led him to consider, one omitted that ought principally to have been taken notice of — — — Page 1, 2.
- Dr. WOODWARD's account of the *Petrification of Sea-shells* vindicated from the misrepresentations of his Lordship p. 2—7.
- Scripture not written according to the *appearance* of things, but *philosophically true*. Objections answered. The *Israelites* a wise and understanding people — — — p. 7—17.
- Reason ought to submit to Revelation; not *vice versa*. Nothing in Revelation disagreeable to Reason p. 17—19.
- Of the Extent of the Creation spoken of in Gen. i. It includes the fixed Stars, Planets, &c. — p. 19, 20.
- The fixed Stars and Planets made for the service of the Earth, not for any other Inhabitants. Several arguments in proof of this. Objections answered — p. 20—34.
- Gen. i. 2. *The Earth was without form and void*. His Lp's interpretation examined, and the true laid down p. 34—6.
- And Darkness was upon the face of the Deep*, explained; with a remark upon our Author — — — p. 36, 7.
- And the Spirit of God moved upon the face of the Waters*, paraphrased; with remarks — — — p. 37—41.
- And God said, Let there be light*, and there was light. The true meaning shewn; and experimentally proved p. 41—5.
- And God divided the light from the darkness*; paraphrased — — — — — p. 45, 6.
- And the evening and the morning were the first day*. Remarks on our Author; with an explanation of the passage p. 46—52.
- The Scripture full and clear in declaring the *Cause* of the motion of the Earth *on its axis*, in its *orbit*, and with regard to its *declination*. The great deficiency of the *Newtonian Philosophy* in this respect — — — p. 52—61.

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And God said, Let there be a Firmament in the midst of the waters, and let it divide the waters from the waters, &c. Remarks on his Lp; with a full exposition of the passage p. 61—8.

And God said, Let the Waters under the heaven be gathered together into one place, and let the dry land appear: And it was so, &c. Our Author's comment examined. The Newtonian Hypothesis of centripetal and centrifugal forces confuted. The true interpretation of the above passage laid down p. 68—80.

And God said, Let the Earth bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit, after his kind, whose seed is in itself, upon the earth, and it was so, &c. explained; with a full account of Vegetation from Scripture; confirmed by Experiments p. 80—5.

And God said, Let there be Lights in the firmament of heaven, to divide the day from the night, &c. paraphrased; with Remarks on our Author p. 85—7.

And God said, Let the Waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth, &c. explained p. 87, 8.

And God said, Let the Earth bring forth the living creature, after his kind, cattle and creeping thing, and beast of the earth; &c. commented on; with remarks on his Lp's comparison of Moses with Aristotle; of the Hutchinsonians with the school of Paracelsus p. 88—92.

And God said, Let us make Man in our image, after our likeness, &c. And the evening and the morning were the sixth day. The reason assigned why GOD formed the world in time or in a gradual progress, contrary to our Author's assertion, that no reason could be given for it p. 92—4.

Thus the Heavens and the Earth were finished and all the host of them. And on the seventh day God ended all his work which he had made; and he rested on the seventh day from all his work which he had made, &c. The reason of the institution of the Sabbath, in opposition to his Lp's account. The System of this world a self-moving machine, under the inspection and government of GOD. p. 94—100.

E R R A T A.

Page 4. Line 1. dele *on*.—p. 13. l. 27. instead of . place ?.—
p. 26. l. 30 for *make r.* makes.—p. 34. l. 13. for *awilpah r.* *awilpah*.—
p. 40. l. 28. for *speaketh r.* *shaketh*.—p. 63. l. 11. for *most r.* moist.—p. 64. l. 13. for *constantly r.* instantly.



REMARKS, &c.

IS Lordship begins with giving an account H of the systems of five Gentlemen, who have wrote concerning “the petrifaction of sea-shells, now found buried in the bowels of the earth,” viz. Dr. *Burnet*, Dr. *Woodward*, Mr. *Whiston*, Monsieur *Buffon*, and Mons. *le Cat*: These he is pleased to stile “the *principal* persons, who have written upon this subject.”^a But I humbly apprehend there are several others, who have treated the subject in a superior manner to any of the above-mentioned writers, except Dr. *Woodward*; and there is one Author, who may be presumed to be preferable to him; as he has undertaken to perfect what the Dr. left incompleat, and whom, from what his Lordship says p. 71. I must suppose he has read, and therefore am surprized he has taken no notice of;—the Author I mean is Mr. *Hutchinson*. That Dr. *W.* was indebted to him for many discoveries in the fossil way, is well known to those who are acquainted with their histories; and it appears from a *Treatise*,^b which Mr. *H.* wrote when

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^a Page 3. ^b *Observations made by J. H., mostly in the Year 1706.*

he was about twenty-six years old (before he understood any thing of *Hebrew*) how far he, even then, surpassed Dr. *W.* in the knowledge of the *natural state of the earth*.—Why therefore such an Author as this should be passed over in silence, is best known to his Lordship; and it seems more extraordinary, if we consider, that he has condescended to examine one system (*viz.* that of Dr. *Burnet*) which appeared to him to contain so little solid truth, that it was written “rather with the pen of the *Poet*, than the *Philosopher*.^c And with regard to Mr. *Whiston*’s cometic hypothesis, “it seemed to him much better calculated for the setting the world on fire, than overwhelming it with water.”^d And in relation to Messrs. *Buffon* and *le Cat*; they, themselves, had advanced “an amazing contradiction to their general system,” and the express words of Scripture.^e So that, I humbly conceive, Mr. *Hutchinson* could not well have been beneath his Lordship’s notice, and therefore ought to have been considered.

WHETHER his Lordship’s Subject lead him directly to examine the systems of each of the five Authors he has been pleased to animadvert upon,—and whether he has given a true and fair representation of their systems,—and has really confuted them;—I shall not concern myself about, farther than as it relates to Dr. *Woodward*; because I apprehend, that he only is consistent with truth; and the rest may be easily confuted.

To examine therefore our Author’s Account of Dr. *Woodward*’s System. Which is thus laid down p. 6. ‘ But that which is peculiar in his system, ‘ is this, that finding *sea-shells* not only in the heart ‘ of mountains, and *almost* at the bottom of the ‘ deepest pits [the Dr. says to the greatest depth we

ever dig, *Nat. Hist.* p. 75] and also finding them frequently petrified and inclosed in the solid rock ; and frequently also consolidated with the stone itself, so as only to be distinguished from it by the difference of colour; he supposeth that at the time of the deluge, when the fountains of the great deep were broken up, the surface of this earth, together with its rocks of stones, and mines, and minerals, &c. were, by *the power of the water*, and the will of GOD, turned into a soft pulp.' This is an assertion, which Dr. Woodward had been charged with in his life-time, and opposed by several for maintaining that the *Earth*, during the time of the deluge, was *dissolved*, or as 'his Lordship is pleased to express it *turned into a soft pulp*', by the *power of water* (the *will of God* always included, for if this act was ever done, it must of course be through that). The same charge has been repeated by some moderns since the Dr's. death. In which I am sorry to find his Lordship of Clogher joining, and that too I am afraid merely upon trust or by hear-say ; (a fault which he so often and so justly blames Lord Bolinbroke for) since the Dr. himself has replied to this very objection, and in the following affecting and modest manner, ' But nothing has ever encouraged me more than your approbation [i. e. Sir Robert Southwell's, to whom the Dr. writes]. And I have reason to think this an over-ballance to all the opposition that I have found from some, who are far from having shewn a Judgment, a Fidelity, and Exactness like what you do on every occasion. With this encouragement I can easily bear the being *wrongfully charged* in print, and having objections raised against my *Nat. Hist. of the Earth*, by some, as if I there suppose the terrestrial globe was dissolv'd by a menstruum; by others, quite contrary, as if I supposed it was dissolved by *the water of the deluge*; nay, and that this is one

‘ of the main articles of it, and the grounds on which
 ‘ I design to build my Theory, as they are pleased to
 ‘ call it, upon; when, in truth, I am so far from
 ‘ having ever offered any thing like that, or sug-
 ‘ gested that either *water*, or any menstruum, was
 ‘ the Cause of that Dissolution, that I no where through-
 ‘ out that whole discourse, go about to assign *any*
 ‘ *Cause* at all.—Indeed, Sir, as you observe, it can-
 ‘ not but be a great blemish cast upon a work, to be
 ‘ laid under such imputations; since nothing can be
 ‘ more absurd than to imply—That *all the Solids* of the
 ‘ whole terrestial globe should be, in a short time,
 ‘ *dissolved*, and reduced to their original constituent
 ‘ principles, by meer *water*, that is not capable of
 ‘ dissolving a flint, which is far from being one of the
 ‘ hardest, in many hundreds of years.’^f—His
 Lordship proceeds ‘ Which [i. e. the above-mention’d
 ‘ *soft pulp*] hardening by degrees afterwards upon the
 ‘ retiring of the waters, the *shells*, that by the force
 ‘ of the deluge were flung upon the land along with
 ‘ their neighbouring earth, became afterwards of one
 ‘ substance with the mud to which they were united,
 ‘ and so hardening by degrees, were *converted into*
 ‘ *stone* or otherwise, according to the nature of the
 ‘ pulp in which they were inclosed.’ This supposed
 conversion of *shells* into *stone* has been maintained by
 several; and is indeed by his Lordship himself: But
 how far Dr. W. was from agreeing therein, let the 21st
 page of his *Nat. Hist. of the Earth*, declare; part of
 which I shall here transcribe; ‘ That for the metallic
 ‘ and mineral matter which sometimes adheres to the
 ‘ surfaces of these *Shells*, or is intruded into their
 ‘ pores, and lodged in the interstices of their fibres,
 ‘ ’tis all manifestly ADVENTITIOUS; the mineral par-
 ‘ cles being plainly to be distinguished from the

^f *Natural History of the Earth illustrated, &c.* Introd. p. 155.

‘ testaceous ones or the texture and substance of the shell, by good glasses, if not by the naked eye, &c. &c.’—See also p. 182—4: 233, 4.

THUS I have given the reader, word for word, his Lordship’s *Account* of Dr. W——’s Hypothesis concerning ‘the sea-shells which are now found buried in all parts of the earth’; and have examined it by the Dr’s own words. And now, whether he might not have called the Account any other Author’s in the world, as well as Dr. Woodward’s, is left to the determination of the reader.

I AM next to consider the objections to *this account* of Dr. W——’s hypothesis, &c. But as our Author has failed in giving a *true account*, I apprehend the objections can be of no great force. However, his Lordship’s Station and Character in the world oblige me to consider them.

‘ WHICH supposition or hypothesis (says he P. 7) would serve well enough to account for *those shells* that are *dissolved* and *turned* into the *very substance* of the *encircling fossil*; [If *any such* there were, it would destroy the Dr’s hypothesis; and the whole evidence upon which it is built, would be lost;] But will by no means serve to account for *those shells*, which being enclosed in the bowels of the earth, have nevertheless still retained their own natural form and specific gravity; since it is manifest from their retaining their own natural shape and substance, that *they* were not, and of course that *every Thing* was not then *reduced* into ‘*pulp*.’ The Dr. is here represented as being of opinion, that *every Thing*, i. e. *shells* as well as *stones*, were at the deluge *reduced* into a *pulp*; whereas it is evident from his writings, that he maintained no such thing; nay, he makes the very same distinction his Lordship does; and proposes in a future work, to assign a plain and physical reason

why ‘the Shells, &c. were not dissolved, as well as ‘the Stone, and other minerals,’ *Nat. Hist. of the Earth*, P. 108^s. So that his Lordship and the Dr. are exactly of the same opinion; and yet his Lordship is strenuously arguing against the Doctor.——He proceeds ‘And therefore as those shells had mani-‘ festly strength enough in their construction to re-‘ sist such a reduction, those mines and minerals which ‘were of a more firm, solid, and rigid composition, ‘may well be supposed to have preserved their own ‘natural firmness also.’ If his Lordship has ever look’d into the earth, and examined the strata of it; he cannot but know, that all sorts of shells,—as fair and perfect as if they were just brought from the sea-shore,—are found *immersed* in the *very substance* of the *hardest minerals*; and the *stone* so closely applied to the *inward*, as well as *outward*, surfaces of the shells, as to have taken off, by way of impression, the *finest lineaments* of each; now how this could possibly have been effected, unless the stone was reduced to its original atoms, or *dissolved* and *liquified*, (for the act was done *in water*, though not altogether *by water*) is to me wholly inconceivable. If any one was to see a quantity of shells inclosed in a solid mass of ice, could he doubt, Whether that ice was once *fluid*? And yet the impressions of the shells in stone are as exquisitely perfect as they can possibly be in ice. Both substances therefore were once in an *equal state* of fluidity; and yet the shells in neither case *dissolved*.

BUT what his Lordship says concerning ‘mines ‘and minerals [as it is expressed] being of a *more firm, solid, and rigid composition* than *shells*’ is, I believe, a mistake. When indeed we view the im-

* See also *Nat. Hist. of the Earth illustrated*, P. 94, where the same is expressly asserted; and is to be found in many other parts of the Dr’s writings.

mense strata of the earth, as they naturally lie, or even as they are raised from their beds in large blocks for human use, and compare a *Shell* to any such *Mass of Stone*, it appears scarcely credible that the former should exceed the latter in hardness and duration : but this is not making the comparison fairly ; let a *part* of such stone be taken and moulded into the *shape, size, and thinness* of a shell ; and let both be exposed to the power and action of the light and air ; and I dare say, the shell will outlast the stone : Of this I have seen many hundred instances. It is common to observe on the tops of rocks, which lie open to the weather, and which happen to contain in them *shells, teeth, &c.* that such shells are frequently prominent or project from the rock ; the stony substance having been eaten and worn away by the continual beating of the wind and rain ; which is a plain proof that the *Shells* were of a *more firm, solid, rigid composition* than the *Stone*. And lest it should be objected that these shells might have stood out thus prominent from the rock at the diluvian settlement of the strata, and so the stone not have been worn away since ; let the tops of the highest buildings be examined ; the stones of which having been sawed and smoothed, for use or ornament, to an even or regular surface, could have no body whatever protuberant in them ; and yet (if the building has stood for any considerable time or been much exposed to the weather, and the stones thereof contain shells, &c.) the shells will appear to have outlasted the stone, just in the same manner as in the above case : Of which also I have seen innumerable instances.

I SHALL now take notice of an observation or two of his Lordship's concerning the *manner* in which some, especially the *philosophical* parts of Scripture are written. For if what he says on this article be true,

all that I shall hereafter say, will be of little avail. It is difficult indeed precisely to say what his opinion is, as in delivering of it he has closely blended *Truth* and *Falshood* together. But one may be separated from the other, and allowed; and the falsehood detected. The sum of what is asserted on this head seems to be contained in the 15th page; and principally in the two following positions. First it is said, ‘ To suppose ‘ that the holy Spirit could permit any of *its* [why ‘ not *His*^b? Is not the holy Spirit a *Person* in the God- ‘ head ?] inspired writers to intersperse with *its* ‘ [*His*] revelations any *real errors* or untruths, ‘ either natural, historical, or geographical, would at ‘ least be an unjustifiable imputation, if not blas- ‘ phemous.’ This is undoubtedly true. And if his Lordship, as he had occasion but a few lines before to quote 2 Tim. iii. 16. had inserted the former part of the verse, *viz.* *All Scripture is given by inspiration of God*, it would have appeared more conspicuously true to the reader: and the contrast between this and the next position I shall cite, more glaring and evident; whether therefore that part of the verse was omitted with, or without design, is best known to himself. However the next assertion is this, ‘ Whereas it is no ‘ disadvantage to the veracity of the holy Scriptures, ‘ to have certain opinions mentioned in them as true, ‘ though in themselves *really not true*, provided such ‘ were then the *current opinions* of those times, and

^a This is not to be looked upon as a slip of the pen, but designedly written; for we meet with too many such reflections on the *Holy Ghost* in his Lordship's treatise, to allow us to impute them to accident: Much less can we do so, when we consider that he is universally supposed to be the *Author* of a book lately printed, entitled, *An Essay on Spirit*, &c. in which the *Holy Ghost* is blasphemously degraded into the low rank of a *creature*. If his Lordship be not the author of this book, 'tis to be hoped he will clear himself of the charge, or else reply to Mr. JONES's *Full Answer to the Essay on Spirit*.

were in those ages thought to be true.' Which is supposing, that the holy Spirit of Truth would sanctify all kinds of falsehood, and even, with regard to *natural philosophy*, the *grossest idolatries*; for such have been the *current opinions* of some times, and in *some ages thought to be true.* It is asserted again and again throughout the whole Bible, that the object of worship of the antient Heathens was the *material Heavens* or some part or other of the system of nature; they worshipped either the Sun, the Moon, the Stars, the Fire, the Light, or the Air, &c.ⁱ and we never read that they had ever any other god or gods, but such as these. Now the most likely and effectual way to destroy this idolatry would be, to reveal a true system of nature,—to declare that the Heavens were *created* (and so not GOD)—to shew how, step by step, they were *formed* into a machine for the service of man; and therefore that man ought not to be subservient or pay adoration to them; and to omit declaring this, would be to leave and encourage men in their idolatries; especially, if any account of nature was given in the Bible; and as such is undeniably laid down, principally, in the first chapter of *Genesis*; that must undoubtedly be true. Besides; was not the Bible written for *this age*, as well as those in which the writers of it liv'd? nay, was it not written *for*, and therefore is to continue *to*, *all ages?*—Did not the Spirit of Truth (*in whose sight a thousand years are but as one day*) very well know, that certain self-sufficient mortals would rise up (after his revelation was *delivered and sealed*) contradict his

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ⁱ Deut. iv. 19. xvii. 3. 1 Kings xi. 5. 2 Kings xvii. 9. xxiii. 4. &c. 2 Chron. xiv. 3. 5. Job. xxxi. 26.—29. Jerem. vii. 9. 18. viii. 1. &c. xix. 4, 5. 13. xxxii. xliv. Ezek. viii. 15. 16. xxiii. 30. 37. Wisd. xiii. 1—4.

The Writings of the *Grecs* and *Romans* abundantly testify the same, as several Authors have shewn at large.

word, dispute his philosophy, and presume to give a system of nature out of their own brains; when it was as much, or rather far more impracticable for them to give the true one, than it would be for a man,— who had never seen a watch, or any machine like it, and was utterly ignorant of the movements within,— to account for the motion of the hand, in its regular circuit, round the dial-plate *? Did not the Spirit of Truth, I say, know all this? and would not his goodness prompt him, and his veracity induce him to reveal a true System of Nature; that those who had humility to own,—that God alone could give an account of his works,—and were willing to search his Word for that instruction, should there find the inestimable treasure? And as God has vouchsafed to give an account, who will presume to affirm that That account is untrue, or “*accommodated to the current*” tho’ false “*opinions of the times?*” I am sorry to think that his Lp. of *Clogher* (unwittingly, I hope) asserts thus much; and undertakes to prove the same from *Scripture-instances*; which therefore must be examined.

‘ For thus *Moses*, says he, p. 15. when speaking ‘ of the moon, calls it a *great light*; because it appa- ‘ rently is so, and was in those ages thought to be ‘ such.’ *Moses* is speaking with regard to the light that shines in the *day*, and the light that shines in the

* “ These great architects (says the Abbé Pluche in his *History of the Heavens*) let us rather say, these *crawling emmets*, who (just) knew how to put two straws across, and dispose a few bits of wood for their own lodging, attempt, *each after his own manner*, to construct the sun, and to give the plan, sections, and elevations of the universe. One of them looks with an eye of pity on the work of the other. Let us no longer listen to their quarrels. Let us listen to the instructions of experience. Experience contradicts them all, and speaks in favour of *Moses*. ” Vol. II. p. 189, 209.

night-time upon this earth ;¹ and whether any one body in the universe, or any collection of bodies, even all the fix'd stars, cast a greater light upon this earth in the *night-time* than the *moon* (*walking in brightness*, as it is expressed, *Job xxxi. 26.*) I leave to every man of common sense to judge.

AGAIN, (*ibid.*) ‘ In like manner the sun, moon, and stars, are described as being *in the firmament of heaven*, because they apparently are so, the human eye not being able to distinguish the different distances of bodies, after certain limits. So that although *Moses*, when speaking *more accurately*,² plainly describes *the firmament of heaven* (*Gen. i. 6, 7.*) to be only that extent of atmosphere, which immediately surrounds this earth, and divides the waters which are in the clouds, from the waters which are in the seas ; yet as the human eye cannot distinguish how far this atmosphere extends, therefore every thing which is seen through it, though, in reality, greatly beyond it, was then thought, and is even now, according to the speech of the vulgar, commonly said to be in it.’ From whence it will follow, that, according to the *vulgar mosaic* [i. e. properly speaking, *the Spirit of God's*] account, the firmament of Heaven reaches no higher than the *clouds* ; [which many mountains vastly exceed in height] and *Moses* asserts, that God placed the sun, moon, and stars, *in this firmament*, i. e. *below the clouds* ; because they are *apparently* so situated.—But do the sun, moon, and stars *appear* to be be-

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¹ *Gen. i. 16, 17.*

² As if *Moses* could possibly speak *more accurately* in one place than in another ; he might speak *more fully*, but not *more accurately*, because he was directed in *all* he said by the infallible *Spirit of God.*

low the clouds? Can any *child* think so? Does not almost every day's experience convince us, that the sun is *above* the *clouds*, by the clouds passing *under* it, and obstructing its light? And does not every eclipse of the sun shew, that the sun is higher than the moon? And when the moon, in its orbit, across the heavens, hides from our view the sight of so many stars, does it not plainly prove, that the stars are higher than the moon?—But possibly it will be replied, that allowing the children of *Israel* saw the clouds pass *under* the sun, does it follow, that they could draw that amazingly deep conclusion, that therefore the sun was *above* them? Are they not stiled the *children of Israel*? And does not this imply, that they were an *ignorant*, *childish*, *stupid* set of people?—Which *modern* way of arguing puts me in mind of the shift which even the ingenious Dr. *Burnet* was driven to, in his attempt to *expound* (I had almost said to *expose*) the *Mosaic* account of the Creation and Formation; where finding, that *Moses* maintained so gross an absurdity as,—that light was existent *three days* before the *sun* was *created*;—the Doctor (*dignitati Mosis consulere*, to preserve the dignity of *Moses*) gives us this judicious explication, that *Moses*, speaking according to the capacities of the vulgar, was obliged to assert, that light was in being before it really was, “*ne Deus videretur in tenebris operari per triduum,*”^a that is, dear *English Reader*, “lest God should seem to work three days in the dark.” And can *Christian* writers thus ridicule *the people of God*, and then wonder, why infidels carp at the Bible, and disbelieve the Prophets? Do they really imagine, that they are maintaining the *dignity* of the scriptures, when they are defending them upon this supposition? Can they produce one text to authorize their assertion, that *the children of Israel* i. e. (*Exod.* iv. 22. *Deut.*

^a *Archæol. Phil.* Lib. II. Cap. viii.

xiv. 1.) the *adopted sons of God* were ignorant and stupid beyond all nations? Do they not know that there are innumerable passages of scripture to prove the contrary? I shall cite two for their sakes. First, Moses gives this character of the *Israelites*, (Deut. iv. 1, &c.) *Now therefore hearken O Israel,—Behold I have taught you statutes and judgments, even as the Lord my God commanded me. Keep therefore and do them, for this is YOUR WISDOM and YOUR UNDERSTANDING in the sight of the nations, which shall hear all these statutes, and say, Surely this great nation is a WISE and UNDERSTANDING PEOPLE.* For what nation is there so great, who hath God so nigh unto them, as the Lord our God is in all things that we call upon him for? And what nation is there so great, that hath statutes and judgments so righteous as all this law, which I set before you this day? St. Paul speaking of the advantages of the Jew above the Gentile (Rom. iii. 1. ix. 4.) says, *What advantage then hath the Jew? —Much every way; CHIEFLY, because unto them were committed the ORACLES OF GOD;—to whom also pertaineth the adoption, and the glory, and the covenants, and the giving of the law, and the service of God, and the promises; whose are the fathers, and of whom; as concerning the flesh, Christ came.* Are people thus dignified and characterized in the Word of God, to be looked upon as the scum of the earth, and persons of no understanding. A difference indeed must be made between the *antient Israelites* and the *Jews* in our Saviour's time; these *last* were under a judicial blindness and predicted infatuation; they *had corrupted the scriptures and made them of none effect; were blind leaders of the blind, &c.*—But with regard to the real knowledge of the *antient Israelites* in *natural philosophy* (if that does not sufficiently follow from their being wise and learned in the *oracles of God*, which contain a true philosophy) I desire the reader would consult the third, nineteenth, and twentieth chapters of Dr. DICKINSON'S *Physica*

vetus et verà. Part of which I shall here quote ; being so very applicable to the present purpose, and containing the heads of what is discussed and proved at large. The Doctor having spoken of those, who, through mere ignorance, endeavour to accommodate the *Mosaic* account of the Creation to the appearance of things, and their own low notions, says after . ‘ The same things are urged by the more cautious atheists ; but with a different design ; namely, that through *Moses*’s fides they might the more secretly and securely wound religion itself ; deride that philosophy which was suited to the taste of the vulgar ; and despise God, who could chuse for his *beloved* and *peculiar treasure*, a people, the most ignorant and stupid of all, and who were scarcely above the degree of brutes. Hence such persons draw their arguments, hence they sharpen their gigantean weapons against God.—

◦ Pag. 272. ‘ Eadem fere commentari videntur et urgere prudentiores Athei ; sed dissimili planè consilio ; nimis ut *Mosen* ed secretius atque securius arrodant atque pungant ; ipsamque religionem per ejus etiam latera penitissimè transfigant ;—et ut profuse deriderent eam Philosophiam, quam sola insipientium palata sapiunt ; spernerentque DEUM, qui populum rudem atque stolidum præ cunctis habet sibi pro *Dilecto*, et tantum non brutum pro peculio. Hinc argumenta sibi defumunt, hinc arma sua Gigantea contra DEUM cudunt homines impii. — Hunc autem populum (Deo peculiarem) quem sacræ literæ de parentibus ingeniosis atque doctis ortum, perpetuisque familiarum sibi succendentium memoriis ac disciplinis eruditum, satis aperte significant : quem *Moses* ipse variis artibus insigniter instructum affirmat : quemque Gentium doctæ recordationes etiam mathematicis artibus, et astronomiâ particulatim; cunctisque reverè scientiis (quibus Græcia postea floruit) ornatum memorant : cui etiam, dum viveret *Moses*, artes mathematicæ vulgares erant ; et vetustissima Philosophia benè nota ; quemque demùm naturâ suâ Philosophum esse docti quidam viri multas ab hinc ætates celebrati senserunt. Hunc inquam Populum jam a non nullis hominibus, nullo pudoris aut justitiæ fræno coercitis, omnibus infamiæ simul et insciitæ nominibus oneratum esse, superasset omnem fidem, nisi palam scriptis atque sermonibus, extra omnem dubitationem positum fuisset ? ’

That this people,—thus peculiarly beloved of God,
—whom the sacred Scriptures represent as sprung
from ingenious and learned ancestors;—and to have
been continually instructed in the records and doc-
trines of their race,—whom *Moses* declares to have
been remarkably skill'd in various arts,—and whom
the writings of learned Heathens mention as fa-
mous for the mathematical sciences; for astrono-
my in particular; and indeed for all those arts, in
which *Greece* afterwards flourished;—among whom,
even in the time of *Moses*, the Mathematics were
in common use, and the most antient Philosophy
well known;—and whom several learned men have
formerly celebrated as being *Philosophers by nature*.

That this People, I say, should now, by some
men who seem to have lost all sense of shame and
common justice, be loaded by the names of the
most infamous and ignorant, would surpass all credit,
did not their *publick writings* and *open discourses* put
it out of all doubt.[¶] From what has been said
then concerning the *Wisdom* of the children of Israel,
we may now perhaps be induced to allow them to
have been as wise a people as ourselves. And let
us see whether the inspired writers did not extend the
Firmament of Heaven to its *real height*. First, it is said
Gen. i. 17. *God set them [the Sun, Moon, and Stars]*
in the Firmament of Heaven. The Firmament therefore
is as *high* as the *Stars*. And of the *Stars* it is thus
with wonder spoken, *Job xxii. 12.* *Behold the height of*
the Stars, how high they are! But more expressly of

[¶] *Josephus*, (whose testimony with some may be of great weight) says, ‘that God granted *pious men* in the *first ages* of the world
long lives, not only as a reward of their virtue, but for the *usefulness* of those things which they studied, to wit, *Astronomy* and
Geometry; that by living thus long, they might bring those Sci-
ences to the greater perfection and certainty.’ *Lib. i. Chap. 4.*
Ant. Jud.

the Heaven itself, *Prov. xxv. 3.* *The Heaven for height, is unsearchable.* *Jerem. xxxi. 37. Thus saith the Lord,* If the Heaven above can be measured,—then will I cast off all the seed of Israel. Nay, the infinite mercy of God to fallen man is compared to the Height of Heaven, *Psalm ciii. 11.* As the Heaven is high [marg. according to the height of Heaven] above the earth; so great is his mercy toward them that fear him. Or, what is more, his almighty power and infinite perfections are pointed out by this similitude, *Job xi. 7.* Canst thou by searching find out God? Canst thou find out the Almighty unto Perfection? It is as high as Heaven, what canst thou do? deeper than Hell, what canst thou know? Will any modern Philosopher presume to speak in sublimer terms of the Height of Heaven? If he does, or rather if he can, he must so far exceed the Truth.

ANOTHER instance which his Lordship brings ^a as a proof of Scripture's conforming to the appearance of things, is “The fact related in the book of Joshua, where it is said, that the sun stood still.” But he should have mentioned the place or that part of the earth on which it is said the sun stood, viz. upon Gibeon, and the moon in the valley of Ajalon. Now certainly, even according to the appearance of things, neither the Sun nor the Moon, i. e. the bodies of them, stood in these places. According to the appearance of things, it was the Light proceeding from each, that stood there. And it has been proved by several writers, that the word here translated Sun means the Light issuing from the sun (which therefore, as it is afterwards related, might have stood in the midst of Heaven as well as upon Earth; but the body of the sun could not have been, or even seemed to have been in both these places at once). I shall here recommend to the reader, a Treatise lately published, in which not only this point is

proved, but also all the arguments usually brought against Scripture's speaking philosophically true, are answered, and many positive arguments laid down, by which it must undeniably follow, that the Bible, with regard to *natural subjects*, is *strictly and literally true*. The Treatise is entitled, *Philosophia Sacra, or the Principles of Natural Philosophy, extracted from Divine Revelation*, by S. PIKE. I mention this book chiefly, because it is short, written in English, with great perspicuity, and purposely adapted to the meanest capacity; and what is remarkable, the author was, not long before¹, as much averse, as any man at present can be, from thinking that the *Scriptures were wrote philosophically true*. But after the immense, tho' worthy and just pains, (shall I say pleasure?) of reading the Bible throughout,—extracting all the passages relating to natural Philosophy,—and comparing them together, he found the agreeable truth, that Scripture was as just in its descriptions of *natural* as of *spiritual* things.

OUR Author having thus, by the above remarkable observations, ‘ cleared the way ;’ proceeds now ‘ to vindicate the account which *Moses* giveth of the Creation and Deluge ; and to endeavour to reconcile it with *Reason and Philosophy*.’ Which attempt surprizes me much ; as the sole tendency of the above-mentioned observations is to prove, that *Moses* wrote neither agreeable to Reason nor Philosophy, but receded from both, in order to adapt his account to the *more appearance* of things. But the latter part of the undertaking is somewhat more strange, viz. ‘ to endeavour to reconcile the *Word of God* with *Reason and Philosophy*.’ I apprehend, the attempt

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¹ See the *Preface*, and *Chap. 1st.*

² Page 42.

should have been directly the reverse, viz.—to reconcile *Reason* and *Philosophy* to the *Word of God*. ‘*Taxandi sunt*, says OLEASTER, *qui potius volunt sacram Scripturam Philosophiae regulis subdere, quam, ut magis decet, Philosophiam tanquam ancillam, illi deservire.*’ i. e. They are to be blamed, who would subject the Sacred Writings to the rules of Philosophy, and not, as it would be more becoming, make Philosophy subservient to Scripture, as her hand-maid. For, God must be true, and what He says, be the standard of Truth: but human Reason and human Philosophy (which his Lp. must here mean) may, I will venture to affirm, ever did, and ever will lead those into error who trust to them for instruction in things infinitely beyond their reach; and such undeniably must the manner in which God made the world, and the manner in which he *destroyed* it at the flood, and *ré-formed* it after, be allowed to be. And tho’ there are evident marks in this earth, that the Scripture-account of the *Ré-formation* of it after the flood, and so of its first formation, is true; yet these marks could never have been known, at least applied, or this Philosophy have been discovered, unless the *Principles* of it had been *revealed*. Scripture-truths, like all other, when once known or fairly declared, are easily enough to be apprehended, and by every unprejudiced mind will be readily assented to; but the difficulty is, an *impossibility*, I will say, it is to *discover* them *without* a Revealer. And if some late writers in their disputes with the Deists had but defined what *Reason* was,—and made a distinction between *Reason*, as enlightened by Christianity (as every man’s reason, who is born in a christian country must be) and the state it would have been in, had it been left to its own *natural* workings;—the deistical Infidel would not have had one word to have said for himself. § *Reason*, (say two judicious writers) is but the capacity of the Soul to know [or, the faculty in the hu-

man mind of viewing and comparing ideas, and after due consideration of the subject, giving judgment; which is the regular process to knowledge]. ‘It is no more
‘in the soul than the *eye* in the body; hath no light
‘in itself; but the light of Revelation [and that only] is
‘sufficient to guide it into all truth.’ The unhappy Infidel thinks otherwise; and, by imagining that his Reason is altogether sufficient for this purpose, refuses the assistance of Revelation as unnecessary, or looks upon it as an infringement, an enslavement of the powers of the human soul: As if, to *think* with *Wisdom supreme*, or *conceive* as *Truth itself* directs, were *folly* or *slavery*. No; Revelation alone enlarges the sphere of human knowledge; and when the mind presumes to range without this guide, it may *imagine*, but it cannot *reason*.

Of this his Lp. unfortunately gives an instance at his very setting out, *viz.* in his interpretation of the 1st verse in *Genesis*, where commenting upon the word *Heaven*, he ‘supposes that by it *Moses* means *only* that ‘*atmosphere* or *firmament of air* which surroundeth ‘this globe of earth,’ but does not include in his account the *creation* of the *fixed Stars*; which he says (page 67) ‘were created millions of ages *before* this ‘*planetary system*.’——I have already proved that the *Firmament of Heaven* reaches to and even *beyond* the *fixed Stars*, and of course that the *stars* are *in it*. And that they were created *at the same time* with the *Heaven* and *Earth* which we inhabit, is evident from Gen. ii. 1. and also from the *fourth Commandment*, *For in six days the Lord made Heaven and Earth, the Sea, and ALL THAT IN THEM IS*.—His Lp. having animadverted on *Messrs. Whiston, Leibnitz, and Buffon* for asserting that this world was *not created* out of nothing, but of some *præ-existent matter or other*,^u—

^t Page 43. ^u Page 45.

says ‘ But wliy, since *Moses* is entirely silent about this affair, these learned persons will not allow this world to have been created out of nothing, I cannot conceive.—This I only mention to shew how far an indulged *Imagination* will carry men of learning, when they have any *favourite scheme* to pursue.’ But surely in an affair, in which *Moses* is not only not silent, but speaketh very expressly and clearly, it is a *far greater instance* of an *indulged Imagination* to assert the contrary; and I am afraid falls under the guilt of that crime,—so ill becoming man, and so very odious in the sight of God,—of being *wise in our own conceits*, and presuming *to think* not only *ABOVE*, but *CONTRARY to that which is written.*

I SHALL here take notice of another opinion of our author, nearly bordering upon the former, viz. *That the Planets and fixed Stars were made for peculiar inhabitants of their own, and not principally for the service of the earth.* His Lordship cannot be ignorant of the mischievous effects that have ensued to Christianity from the assertion of a *plurality of worlds*, and what handle the Deists have made thereof. And tho’ the truth of the fact can be known only from the Word or declaration of GOD, yet he has given us no more than his *own* and a few *imaginings*. Scripture and Reason, i. e. the *Reason of Scripture* (which alone must be admitted in this case) speaks the contrary. For,—*First*,—Gen. i. 17. It is said, that GOD set the stars, &c. in the firmament of heaven to give light upon the earth, LEAIR, ^w to act the part, perform the offices of light upon the Earth; which are great, many, useful, and absolutely necessary for the being and well-being of its inhabitants. Some of these uses are mentioned in this

^w In substituting the *Roman* characters for the *Hebrew*, I shall follow the method laid down by Dr. ROBERTSON in his *true and ancient manner of reading HEBREW without Points*.

chapter; the *Lights in the firmament of heaven* were there placed,—to rule over the day and over the night,—to divide the light from the darkness,—and to be for signs, and for seasons, and for days, and for YEARS.— [I may here just observe; as his Lp. allows (p. 67.) that it is impossible to ‘ascertain the annual revolutions of the earth round the sun,’ or certify the time when a *year* is completed, without due observance of the ‘fixed Stars,’ it will hence follow (if that need now be proved) that the *Israelites* were accurate astronomers; since they were well acquainted with the successive revolutions of the earth round the sun, and are here directed to observe the motions of the heavenly bodies and their influences.]—Again, we read Deut. xxxiii. 14. of the precious fruits brought forth by [the light of] the sun, and the precious things thrust forth by [the light of] the moon. So that *Light* is the great cause of vegetation. And were this a proper place I would undertake to prove, that it is the cause of gravitation, and bears a principal part in turning the earth in its *diurnal*, and directing it in its *annual* revolutions; and moreover, that were it not for the *light* which issues from the *fixed stars*, this earth would soon be *immoveable*. All which I shall occasionally treat of in the following work. The *light* of the heavenly bodies then being thus vastly beneficial to the earth, and as we have no intimation in Scripture, that *they* or *it* were intended for any other body, not even for *themselves*, so we may conclude, that they were *both* made for the service of the earth and its inhabitants. Which may be further strengthned from a consideration that the *lights* of the celestial bodies have been *stop'd* or *supernaturally influenced* in their directions, for the sake of things that were done upon earth *only*; as for instance, at the command of Joshua, the *light* of the *moon* (which of all the heavenly bodies hath been thought the most probable to have been in-

habited) was retarded, and the stream which issues from that luminary to the earth *stayed in the midst of heaven*; which doubtless, were there any inhabitants in the moon, must greatly have affected them; and why they should be thus amazingly astonished for things no way concerning them, is altogether inconceivable. The same may be said of the fact related *Jud. v. 20.* viz. *That the stars* [i. e. the fluxes of light from the stars] *in their courses* [MAMSALUTAM in their strikings, percussions, or impulses; from SALL to strike down, impel downward, &c.] *fought against Sifera*; which text, by the way, shews the great power and influence the stellar light has upon the earth; and indicates that its force, at this time, was increased in some supernatural manner.—*Secondly*,—It is supposed by those who maintain a plurality of worlds, that the fixed stars were created, as his Lp. says, ‘millions of ages before this planetary System.’ I have proved above, that they were created at the *same time* the *earth* was, and therefore in all probability for its use alone.—*Thirdly*,—As the earth and all the heavenly host were created and formed but *just before* man; and then man placed in the world, as the Lord and Master of it; it clearly follows, that the *whole* was intended only as a *grand palace*, fitly furnished and richly decorated, for the future inhabitant of the earth, *MAN*; *MAN!* that exalted creature;—at whose formation the Persons in the Deity made, as it were, a pause in their work, and *consulted*, (*Gen. i. 26.*); *who was formed in the image of GOD and after the divine likeness*, i. e. endowed with properties and faculties similar to those which are in JEHOVAH himself; whose very being and form God himself once assumed, and now retains; who will soon be equal in perfection to the Angels; and even at present is in one respect, viz. in *Eternity forward*, not only equal to

them, but to his GREAT CREATORS.^x —Fourthly, —Let us consider who the Author of this world is, namely, GOD; JEHOVAH HIMSELF, BEING ITSELF, who alone, and with a word's speaking only, gave existence to every thing in the universe : and could, with the same ease that he made it of its present magnitude, have enlarged its bulk to any size whatever. The extent of the world therefore is not great in the

^x I say *Creators*, for the word in the original in *Eccles.* xiii. 1. is in the plural number, *Remember now thy CREATORS* [בָּרוּךְ אֱלֹהִים]. And it is certain from the expression *let us make man*, that more than one, or rather that each Person in the Godhead, were concerned in the formation of man.

I cannot help inserting upon the subject of the Universe's being made for the service of man only, what the ingenious Mr. Baker says in his *Reflections upon Learning*, p. 108. ‘ In this vast compass [of the Universe, according to *Hugenius*, who supposed that if a bullet were shot from a gun, and could always retain the same velocity it had when first discharged, it would reach the nearest of the fixt stars in about seven hundred years] our Astronomers have discoyered new worlds (like that sanguine Conqueror who was seeking out new worlds before the old one was half subdued); every planet must be a world, and every star must have its planets. —These world-mongers are always objecting the improbability of God's framing so many vast and glorious bodies, only for the sake of this earth, so inconsiderable a portion of the whole. Among the rest, *Hugenius*, who in one place makes this objection, in another part of his book (*Cosmoothor*, p. 33) as if he had forgot himself, thinks it enough to say, that God raised this mighty frame of things, that he might contemplate and delight himself thereby ; and were there no other reason, we ought to acquiesce in this.—But they that argue thus, seem to measure things by their own bulk, which is a false way of reasoning. There is more beauty and contrivance in the structure of a human body, than there is in the glorious body of the Sun; and more perfection in one rational immaterial Soul, than in the whole mass of matter, be it never so bulky. There cannot then be any absurdity in saying, That all things were created for the sake of this inferior world, and the inhabitants thereof; and they that have such mean thoughts of it, seem not to have considered WHO it was that DIED to REDEEM IT. Let them measure the world by THAT STANDARD; and they cannot under-value it any longer, without some reproach to INFINITE WISDOM.’

light of JEHOVAH. And if it is *the glory of a king to give as a king*, who shall confine or contract the beneficence of *the King of Kings*? 'Tis not what man deserves, but what God may be pleased to give, That is to be considered in this case. The world indeed, in respect of man, is truly grand and magnificent; but when we consider the Author, we must not say that it is too great for GOODNESS ITSELF, and POWER INFINITE to bestow upon his *own offspring*; especially when we consider that there is a *world*, prepared for us in *another place*, as far superior to this, in every kind of perfection, as the *substance* exceeds the *shadow*, *eternity a moment.*¹ — *Lastly*,—As it is certain, that, when the *probationary state* of man shall be completed, this whole visible system will be destroyed,—*the stars will fall from heaven*; *the heavens themselves be rolled together as a scroll*; *the earth be burnt up*; and *the place of each be no more found*;²—I say, since all these things shall be thus dissolved and annihilated, when the mortal state of man is ended; they certainly were alone made for, as they are now continued in being only during, that state.

IT appearing thus evident from Scripture, that this whole visible system was made for the service of man alone; and therefore that the planets and fixed stars have no peculiar inhabitants of their own: And tho' when an article is once proved from the word of God, not all the reasons [i. e. the *imaginings*] of the most

¹ As a Christian, I am sorry to find his Lp. such a narrow-minded mortal (his own expression p. 195.) as to be content with *one* of the fixed stars for his habitation after this life, and to presume to call them the *mansions of the Father*, (p. 194.) And, if *every one* of these stars may reasonably be supposed to have a planetary system revolving about itself, well might our Saviour say, that *in his Father's house are many mansions.*

² Psalm cii. 25, 26. Isa. xiii. 9, 10. xxxiv. 4. li. 6. Mat. vi. 18. xxiv. 35. 2 Cor. iv. 18. 2 Pet. iii. 10. Rev. x. 6. xx. 11.

reasoning men in the world should be of any avail to induce us to believe the contrary; yet as the opinion under consideration is very prevalent, and his Lp. has produced some arguments in defence of it, it may be expected that I should take notice of them. First, then; the *immense*, the *infinite*, the *unmeasurable distance of the stars from the earth*, is urged as a proof that they can bear no relation to it, can have little or no influence upon it; and *therefore were not made only for man.** But what real service they are of, how nearly each is united by the close and powerful actions of their lights, I have shewn already. But how does his Lp. know, that the stars are at the immense distance he *supposes?* The calculation depends upon the *known real* distance of one of the planets from the sun; suppose that of the earth; which has been generally made the standard of the reckoning. This distance he takes for granted, and does not attempt to prove, but refers us to the astronomers in general, p. 173, 177. and yet p. 184, asserts, ‘that as we are not very certain of the *real* distance of the sun from *any one* planet, a small mistake in the first computation will make a very large one afterwards.’ If this be true in relation to the distance of the planet *Saturn* (of which his Lp. is there speaking) what shall we say when such weak and doubtful reasoning is applied to ascertain the distance of the *fixed Stars*; which are supposed to be almost *infinitely* beyond the orbit of *Saturn*? But let us see how exact philosophers have been in settling the *foundation* of their calculation, viz. *the distance of the Earth from the Sun.* The difference between the antient astronomers on this head, (which may be seen in *Horrox's opera postuma*, p. 164) I shall not mention, because it will probably be objected, that their instruments were

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not so good, and therefore their observations could not be so accurate, as the modern: however I cannot help remarking, that they are in general far nearer the truth than the modern; as will appear, I trust, if the reader will give himself the trouble of comparing them with the method I shall presently lay down for calculating the distance of the earth from the sun to a satisfactory degree of certainty. And here also I must observe that if the moderns object to the calculations of the antients on account of the imperfections of their instruments, I should be glad to know *when* or by what *means* they will assure themselves, that their instruments are sufficiently perfect to take the observations accurately; sure I am, that, from the surprizing disagreement between themselves, they have no reason to think they are so at present, or that they can possibly ascertain the distance by the usual method of attempting to discover *the parrallax of the sun*. But let us see how accurate and exact the best of the latest philosophers have been in settling the *distance of the earth from the sun*. *Mon. de la Hire* supposes the parrallax of the sun (or the angle which the semi-diameter of the earth subtends at the sun) to be 6", and therefore the distance to be 34377 semi-diameters of the earth.^b Now supposing the semi-diameter of the earth to be, according to the most allowed observations, 3983 English miles, its distance from the sun, according to *de la Hire*, may be said to be in round numbers *an hundred thirty six millions of miles*. *Sir Isaac Newton* at one time make the distance of the earth from the sun to be *eighty one millions of miles*^c; and at another, *seventy millions*^d.

^b *Chambers's Dictionary* under the word *Sun*.

^c *Vide his Theory of the Moon* published in *Dr. Gregory's Astronomy*, p. 571, and *Whiston's Theory of the Earth*, Lem. p. 34.

^d *Opticks*, p. 325.

—Dr. Clarke ^e (and Mr. W. Whiston ^f at one time) computes the distance at fifty four millions.—But Mr. Baxter, in his *Annotation* at the end of *Matbo*, has undertaken to prove, upon the *Newtonian* principles of philosophy, that it is impossible the distance should be more than 8000 semi-diameters of the earth, i. e. thirty one millions of miles; and shews that it is far more probable it is less than greater.—Dr. Keill, ^g after having demonstrated the insufficiency of several methods of discovering the distance of the earth from the sun, by observing the parallax, concludes that nothing more could be collected from them, but that the earth is at the distance of 7000 semi-diameters or twenty seven millions of miles from the sun.—Mr. Baxter (in the above-cited place) has an ingenious method of ascertaining the distance, founded upon knowing how far the earth moves in a minute, an hour, or any stated time; and he takes the supposition of Dr. Halley, who, in his observations of Mercury in the sun at St. Helena, says, ‘that the annual motion of the earth is so exceeding swift, as far to exceed that of a bullet shot out of a cannon, and to be after the rate of 3 english miles and half in a second, which is 210 miles in a minute.’ Now supposing the earth to move thus exceeding swift, the number of miles in its annual orbit, or in the radius of such an orbit will not be near so great as in the last mentioned case. The number of minutes in a year are 525969, which multiplied by 210, gives 110,453,490 the number of miles in the circumference of the annual orbit. But 36,817,830 (the third of the last number) is the diameter of the magnus orbis; which being divided by 2, gives the semi-diameter 18,408,915 or (in round

^e Clarke's *Rohault*, Part. ii. Chap. 12.

^f Harris's *Lexicon*, Vol. 1. under the word *Earth*.

^g *Introduc. ad Astronomiam*, p. 345.

numbers) eighteen millions of miles, *the distance of the earth from the sun*.—*Robault*^h places the distance at about five millions. *Varenius*ⁱ at four.—But the most certain method of calculating that I have hitherto seen, and which brings the matter to a very great degree of nicety is, That laid down in a Treatise entitled, *Experimental Philosophy asserted and defended, &c.* (p. 58) and is somewhat analogous to the method pursued by Mr. *Baxter*. It proceeds upon this supposition that the earth turns round, as it goes forward, in the same manner as a coach-wheel, a bowl, or a surveying-wheel doth; and as the agent which turns the earth upon its axis, is the same which carries it in its annual orbit (of which hereafter), and is applied to every part, so the measurement and computation depending upon this rule will be as exact and just as can possibly be desired. Now the circumference of the earth being 23910 miles, this multiplied by 365 (the number of revolutions the earth makes in a year) gives 8,727,150 miles the circumference of the annual orbit or the length of the circular line the earth makes in the year; this divided by 6, gives for the semi-diameter or radius of the annual orbit 1,454,525 miles, or in round numbers *one million and a half* of miles, which must be *the distance of the earth from the sun*.^k

This brings the system of the universe into a tolerable compass, and contracts the madness of imagination.

Again; our author says p. 187. ‘ But here it ought to be remarked, that altho’ the brightness of the fixed stars is encreased by a telescope, whereby they

^h *Tractatus Physicus*, Pars ii. C. xii.

ⁱ *Geograph. General. edit. Isaac Newtono*, p. 39.

^k The Earth indeed, and probably the rest of the planets, are carried in Ellipses; and so, are sometimes nearer to, sometimes farther from, the sun; but this difference is allowed to be but trifling; and taking the mean distance, as I have done, may be esteemed as nothing.

' are rendered more visible, yet their size is not; which
 ' is a great proof of the immensity of their distance: and
 ' is likewise a proof that they all shine with an *original*
 ' light of their *own*, and not with a borrowed light,
 ' as do the planets.' How this proves the immensity
 of their distance I see not; for 'tis only supposing that
 they are of *less* bulk, and placed *nearer*; and the same
 effect will ensue. But I apprehend that it is impossible
 to discover the diameter of any very luminous body;
 especially placed at the distance in the air the fixed
 stars are; for the efflux or profusion of light from
 around them, renders it impracticable to ascertain their
real bulks; tho' the more you can contract this dis-
 persed light, the brighter and more vivid will they ap-
 pear; because you then view them by their *purer* light;
 as is the case of the fixed stars when seen thro' a good
 telescope. But the difficulty is to be certain, that
 the glass cuts off *no more* than the *dispersed light*, and
 that the observer sees *just that quantity* which issues
 from *the circumference of the orb* of the star; which I
 will venture to affirm no astronomer will be able to
 judge of, 'till he has once been upon a fixed star, and
 can come back to this earth, and review his object!—

¹ I shall insert here a few lines from Mr. INNES's *Miscell. Letters on several subjects in Philosophy and Astronomy*, p. 58. ' It is observ-
 ' able that the late astronomers having strongly magnified the *bulk*
 ' and *distances* of the stars, and as much lessened their apparent
 ' bigness; or we could not make each Star a Sun,—especially such
 ' as are in the *milky-way*, where the suns are very thick set. About
 ' 60 years ago they made the sun at 128 semi-diameters of the
 ' earth from us; now Cassini and Hugens reckon 22,000.—Stars in
 ' those days were but 2000 times as far off as the sun; now Sirius
 ' is 27000 times as far off: Sirius, by Tycho, was computed at 3
 ' minutes diameter, by others 2 minutes; and Galileo but 5 se-
 ' conds; the moderns allow it no apparent diameter, only see it
 ' as a lucid speck or point. Glasses of 6 or 8 feet give it a con-
 ' siderable diameter; glasses between 20 and 60 feet see it with a
 ' diameter 7 or 10 seconds; but glasses of 100 feet see it as a speck.
 ' —I do not doubt but at last by lengthening the glasses they may re-

Neither can I see how this phænomenon proves ' that
 ' the fixed stars all shine with an *original light* of their
 ' own ;' for reflected light, provided it proceeds from
 a finely polished, or hard, compact body, such as
 chrystral, glass, &c. must have the same effect ; and
 'tis not improbable, that the fixed stars are only so
 many *specula*, placed at such a distance in the heavens,
 where the motion of the light and air [the former if-
 fusing from the sun ; the latter rushing to it] begins to
 be languid, that by the light reflected from these
 specula a brisk circulation may be preserved and the *ex-
 pansive* power of the air kept up ; of which hereafter.
 And, that the fixed stars do not shine with an original
 light, seems to me probable from their very *brightness* ;
 for were they original foci of light I should imagine
 they would appear of a *dusky* or *reddish* colour, as the

' duce the Sun to a *speck* too.—That telescopes do not lessen the
 ' diameters of the Sun and Moon [as they do those of the Stars] is,
 ' that their light is brisk and not weak ; but that long telescopes do
 ' scatter and yet farther lessen weak light, was observed by the
 ' French Academy when the Great Comet appeared in 1680. For
 ' after the head of the comet disappeared to the eye, it was seen by
 ' telescopes ; by one of 4 feet, plain ; but by one of 20 feet, con-
 fusedly and dimly. Nay, the tail of the comet was seen by the
 ' naked eye, long after it could not be seen thro' a telescope. This
 ' seems a little odd, that the tail and not the head should be seen
 ' latest by the eye, and the head and not the tail by the glasses.
 ' By this we must not conclude the eye was deceived in seeing the
 ' tail, but that the eye is fitter to see a faint light, and takes into
 ' view a larger scope of the heavens.—The tail of the comet could
 ' not be seen thro' the glasses, because of the paucity and weakness
 ' of the rays ; nor the head by the eye, because of the smallness of
 ' it, and rays from a great scope of the heavens confused it.—And
 ' farther, I must say that the eye is fitter to represent the true mag-
 ' nitude, if freed from the glaring light ; which the most ingenious
 ' Sir Isaac Newton was convinced of, and therefore proposed re-
 ' flecting glasses for this purpose. But as to telescopes, if the object
 ' be near, they magnify ; and if at a vast distance they represent
 ' objects too little, and will never answer to judge of the magnitudes
 ' of the stars.

sun does at rising or setting, or any common fire in the night-time.

Page 192. ‘Shall we not then conclude, that those stars, which shine like our sun, with an unborrow’d light from any original but their great Creator, were formed for the use of some *intelligent beings*, who are capable of enjoying the *benefit* of that light and heat which they dispense abroad?’ True, *we* are those *intelligent beings*; the light and heat which they dispense abroad they first receive from our Sun (which is the *only Sun* in this *material world*, as there is but *one sun* or *fountain* of light and bliss in the *spiritual*) and reflect it back upon the earth, for the *benefit* of its inhabitants. This is the truth of the case, if the Maker of these lights knows for what intent he made them.

His Lordship has two other arguments on this head, which as they are of a religious nature, ought by no means to be omitted. They are founded upon the supposition, that the universe is of the prodigious extent and immensity he imagines, and that the fixed stars and planets are inhabited; allowing these two modest postulata, we are told (page 174) ‘the consideration of these things may be of great use, in *abating* our *pride*, and *exalting* our *notions* of the *great Creator* of all things.’ I must own I should never have thought of this argument to abate man’s pride; which has been the very means of fostering and exalting it, by giving room to the wildest genius to indulge his extravagant fancy in acting the god and making (out of his own little head) an *infinity of worlds*. And why our author should have recourse to this far-fetch’d argument for what he allows (p. 189) ‘the little contemptible particles of dust which we daily tread under our feet’ sufficiently evince, I know not:—And if the supposition of a plurality or infinity of worlds may serve to enlarge our *idea* of the *power* of God or exalt our notions of the great Creator of all things,’

it must be remember'd, that it will proportionably tend in weak minds to lessen the idea of his *goodness* and *concern for man*; and so introduce infidelity and atheism in the world. And I am sorry to say it, that several of our modern philosophers have been these weak men; and have argued against christianity from this very circumstance. Whereas, contracting the universe to its real bounds, and supposing ALL to have been created for man, will raise in man (if he has any sense of *gratitude*) the highest degree of acknowledgment and praise; and yet ample room will be left for adoring the power, the omnipotence of God. And if we are to stretch, beyond all reason and religion, the Almighty's power or greatness, on purpose to exalt our notions of it; I can stretch it perhaps far beyond what any modern philosopher ever imagined. All greatness then, I would observe, is *comparative*; what is *great* to man, may not be so in the sight of an angel; and what is *great* to both these, is *nothing* in respect of God. And I can conceive that God, if he so pleases, can create a world in every atom of matter or form creatures so small that every atom of matter may appear to them as large as the universe at present does to man. The ingenious reader, if he is conversant with Mr. *Leuwenbock's* microscopical experiments (which prove, as it said, ' that there are animals in this world so extremely minute, that a million of them might be suppos'd not to exceed the bigness of a grain of sand') or if he allows the *Newtonian* hypothesis, ' that all the matter in the known universe may be reduced into a globe of *one inch* only in diameter,' will not be backward in granting the above supposition *possible*; and as it enlarges the idea of God's magnificent power, he will readily believe it *probable*; and then every atom in this world may be *justly supposed* to contain

¹ *Pemberton's View of Sir Isaac Newton's Philosophy*, p. 356.

another world ; nay, for ought we know (to carry *human probabilities* further) this world itself may be but as an *atom* to another *infinitely larger* ; in which it is tossed about much in the same manner as a *particle of dust* is in this, tho' with as little surprize to or knowledge of its inhabitants, as the movement of an old cheese to the living world within it. O amazing thought ! O God-like power of the human Soul ! with what strength of *imagination* art thou endued ! with what fortitude in thy bold researches ! who canst see, or *imagine* that thou feest (and be unmoved)

- ‘ Atoms or systems into ruin hurl'd,
- ‘ And now a bubble burst, and now a world.

POPE’s *Essay on man.*

But however grand or glorious these imaginations may appear, yet as they are built and stand only upon the *ignorance* and *arrogance* of man, they must fall by their own weight. The God and maker of this world (who best knows what the world itself is and what man is) has referred us only to the *Heavens* [the inanimate agents, operating in their wonderful œconomy and joint-motions, ruling every thing in this system, and constantly dispensing the benefits of this life] as *declaring his glory, and the firmament as shewing his handy-work*, Psalm xix. 1. or, as we are told elsewhere (*Rom. i. 19.*) *That which may be known of God is manifest among men; for God himself εφαντωσε hath shewed it unto them* [hath manifested^m it; for otherwise it could

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^m ‘ The word (as Dr. Ellis observes in his excellent Treatise, *The Knowledge of Divine things from Revelation, not from Reason or Nature*, p. 219) expressly denotes a *positive act* of God, who brought to light, made manifest and evident that which was dark, obscure and unknown before.’ Might I presume, I would recommend to the reader this Treatise of Dr. Ellis’s; it contains (among other valuable truths) an explanation of all those passages of Scripture which the Deists have brought as favouring their *natural-religion* or *self-sufficient scheme*; and such texts shewn to mean directly the *contrary* to what they cited them for.

never have been known]. Ταῦτα, For, [Inasmuch as] the invisible things of Him from [not εἰς, but από, ever since] the Creation of the world [when they were fully revealed to the first man; and he and his sons directed to convey them to posterity] are clearly seen [ναθα-
γάλαι, are evident to the sight] being understood [visibles being made substitutes for invisibles (as all our ideas enter in thro' our senses) and therefore αὐγάλαχ νοσηνα] the invisibles are rendered intelligible, discernible to the understanding] by the things that are made, even his eternal [αἰδιος perpetual, constant] Power [like That of the Heavens] and God-head. Here then is a glass in which men may see εἰς αὐτῆς (1 Cor. xiii. 12) in a resemblance, the nature of the Essence, the Power, the Wisdom, the Goodness, the Glory of JEHOVAH. And as for those who would send the mind of man into infinite Space (as 'tis called) to reap this knowledge, from picking up what it can imagine concerning this or that heavenly body, they are certainly mis-directing people; and the mind after such a search must return as empty as it went out, or be lost in an infinity of non-entities.

To proceed with his Lordship's interpretation of the 1st Chapter of Genesis.

VER. 2. *The Earth was without form, and void.*

Page 45, TOHU VE BOHU; as it is in the original, which words are generally used in the Bible, to denote a *desolate*, *barren*, and *unprofitable* place; to which, I suppose, Moses alludeth in this passage, to the earth's being *without form*; since God had not yet impregnated the earth with the seeds of fertility. That is, the earth was *desolate*, before it was furnished and adorned with any animals, plants, buildings, &c. It was *barren*, even before it had been impregnated with the seeds of fertility. It was *unprofitable*, before any creature could possibly receive benefit therefrom, or

before God had pronounced it *good*, that is, fit for the end he designed it. Which unnecessary description surely cannot be the sense of Scripture: *Munster* seems to me to have given the true meaning of the first word, *Nam est Tohu, quod neque formam habet, neque figuram, sed in propinqua est dispositione ut illam recipiat*, i. e. *For Tohu is that which hath neither form nor figure; but is in a due disposition to receive it.* So that the English Translation is pretty just, the earth was *without form*, i. e. was a fluid, loose, unformed mass; the parts for solids and fluids being confusedly mixed together; it was not created a solid, spherical shell (as it is at present, allowing only for the apertures thro' which the seas, &c. communicate with the abyss) but gained its solidity by degrees. The heathen Poet in the account of the origin of things, which he received from tradition, gives a tolerably good description of the earth in this state.

- ‘ Unus erat toto naturæ vultus in orbe,
- ‘ Quem dixerat Chaos; rudis indigestaque moles;
- ‘ Nec quicquam nisi pondus iners; congestaque eodem
- ‘ Non bene junctarum discordia semina rerum.
- ‘ Sic erat instabilis tellus, innabilis unda,
- ‘ Lucis egens aer. Nulli sua forma manebat.

- ‘ One was the face of nature; if a face,
- ‘ Rather a rude and undigested mass:
- ‘ A lifeless lump, unfashioned, and unfram'd,
- ‘ Of jarring seeds; and justly *Chaos* nam'd.
- ‘ Then ocean, air, and earth confounded were,
- ‘ Unstable was the earth; and dark the air;
- ‘ The sea unnavigable: no forms assign'd
- ‘ To each, as yet distinguish'd any kind.

And the Earth was not only in a fluid loose state, but *void*, i. e. *empty*, hollow within, filled *only* with *air*, or *comparatively void*; for neither Scripture nor

Nature knows any other kind of *Vacuum* or Void than a comparative one. We say, a cask is *empty*, *hollow within*, when it has nothing in it but *air*. Such was the condition of the earth. The meaning of the word BOHU (translated *void*) is fixed, *Isaiah xxxiv. 11. He shall stretch out upon it the line of confusion, and the stones of emptiness* [BOHU.] ‘The land (says Mr. Bate in his interpretation of this text, in his answer to Mr. Berington) was to lay waste, the cities to be in ruins, and it is intelligibly expressed, *He shall stretch out upon it the line of* (i. e. allot it out to) *desolation*, where all ornaments of workmanship or formation should be destroyed? and stones of emptiness, as large fragments of walls and buildings, or large stones lay, when confusedly flung together in heaps of ruins, with *Voids* or *Hollows* between them.—And in these *Hollows*, the birds and wild beasts were to dwell, as the text says.’ The reason why the earth was to be created *hollow* in the inside or with a *central cavity*, will be seen as we proceed.

And Darkness was upon the face of the Deep:

‘FOR (says his Lordship, pag. 46.) as the sun was not yet created, it is certain that there was then *much less light*, than there is now even in the darkest night. If there was much *less light* then, it is certain there was *some light*; and how there could possibly be *any*, before either the light or the sun (as he says pag. 49.) ‘were created or spoke into existence,’ is to me altogether inconceivable.

Moses tells us, that *Darkness was upon the face of the Deep*. By *Deep* [TEUMⁿ] plainly meaning, as above described, the fluid chaotic state of the earth. And

תְּבָעוּם [TEUM] is certainly derived from תְּבָעַת [or TOHU as above written] and both of them denote any thing in a *loose, unstable state*, and here emphatically, the *fluid chaotic mass* of the earth. And as this word describes the condition of the Earth, so HaSaK [or *Darkness*] denotes the state of the *Heavens*.

as nothing was yet *created* or *formed* but *the Heavens* and *the Earth*; so *Darkness* must allude to some condition of the Heaven or Air which surrounded the earth; which state is clearly described by the word *HaSaK*, (translated *darkness*) which takes its name from a verb of the same letters, signifying, to *stop*, *retard*, *restrain*, &c. and so implies that the heavenly matter round and in the earth (for *darkness* was upon *PaNI*, the *faces*, i. e. the *outward* and *inward* *surface* of the earth) was in a state of *stagnation*, or *inactivity*.—*Darkness* cannot be, as our modern Philosophers imagine, a *privation of light*; for light was not yet formed; and darkness existed after, and together with light; for God divided between the light and between the darkness, verse 4.—That darkness is a *real substance*, and of what that substance is formed, is evident from *Exod.* x. 21. where God says unto *Moses*, *Stretch forth thy hand* [exert thy power] *OL ESaMIM*, *over the heavens*, *that there may be darkness* [that the *heavens* may become *dark*, *torpid*, *stagnant*] *even DARKNESS WHICH MAY BE FELT*. *And there was a THICK DARKNESS*, &c. As also from *Isai.* v. 30. *Behold!* *HaSaK JaR*, *Darkness com prest*, and even the *light is darkened* [grown torpid, retarded] *EORIPIE in defluxionibus suis*, says *Pagninus*, in its *defluxions*, *flowings*; which shews that *light* may be *converted*, *thickened* into *darkness*; and therefore both of them are the same in *substance*, tho' different in *outward form or modification*.—All this (tho' true philosophy) is contrary to the apprehensions of the Vulgar; Scripture therefore is not accommodated to their conceptions°.

And the Spirit of God moved upon the face of the Waters.

I ALLOW with our Author, and the best commentators, that by *the Spirit of God* is here meant, not the

° This remark the reader may make on almost every passage in this first chapter of *Genesis*, and be abundantly convinced that *Moses* did not suit his descriptions *ad captum Vulgi*.

immortal, but material Spirit or ‘air’ in motion. In the same sense as the word is to be understood *Isai.* xl. 7. *The Spirit of the Lord bloweth upon the grass of the field;* or rather, as the word is used *Gen.* viii. 1. where the same act is attributed to it, and the earth described to be in the same *fluid chaotic state*, as in the text under consideration, *And God made a Wind (the Spirit) to pass over the earth, and the waters were asswaged.* —

And I apprehend that it is called *God’s Spirit* or *the Spirit of God*, because He alone did, or indeed could (for it was an act equal to that of Creation) produce such a *motion* in the (before) *dark, stagnant air*; and it is so called also, with a view to destroy the opinion of the idolatrous heathens, who worshipped the *Air* or *Spirit* as if it was *God himself*, and not a *creature* of *God*.

His Lordship imagines that it was so called, ‘because it was a method common to the Hebrews whenever they had a mind to express any thing that was *high, elevated,* or eminent in its kind, to call it a thing of *GOD, that is a God-like thing.*’¹ I am surprized that he should assert that ‘the air or atmosphere’ is called ‘the air of God’ on account of its *height*, when he had before endeavoured to prove that the Hebrews had very contracted notions with respect to the height of the air, not imagining it to reach farther than the clouds.² But allowing that they esteemed it, as he now says, to be of ‘great height,’ let us examine the proofs brought for this interpretation. ‘Thus high mountains are in the scripture style called *the mountains of God*. This is not proving that they are so called on account of their *height*; or even that *high mountains* are so called. It is well known, that *mountains* were formerly the places of *worship*, and those where JEHOVAH was worshipped, called *his*, on that

very account; as those consecrated to the service of *Baal*, &c. were called the *mountains* or *high-places* of *Baal*.—Trees also were *sacred*; the *Cedar* in particular, as *Ezek.* xvii. 22. the title of which part of the chapter is thus judiciously given in our *english translation*, *God promiseth to plant the cedar of the Gospel*. See also *Isai.* xli. 19: And that single passage in *Scripture*, where the expression ‘*the Cedars of God*’ occurs is undeniably symbolical: the *Psalmist* is speaking of the *people of God*, the *Church*, under the emblem of a *Vine*, and compares its *branches* to *the cedars of God*, i. e. (*Psalm xcii. 12, 13*) *flourishing like those which were planted in the house of the Lord*; and so dedicated to him.—

‘Men of power and authority are called *Sons of God*.’ *Sons of God* throughout the *Scripture*, when applied to men, means *Believers*, or the *adopted Sons of God thro’ Faith*, as *Sons of Adam*, *Belial*, &c. means *unbelievers*, *apostates*. I suppose his *Lp.* alludes to *Gen. vi. 1. And it came to pass, that the Sons of God saw the daughters of men, that they were fair: and they took them wives of all that they chose.* (So the *Israelites*, *Num. xxv.* the *children of God*, were enticed and beguiled by the *daughters of Moab* to commit whoredom with them.) ver. 4. There were *Giants* [ENaPaLIM fallen ones, *Apostates*, from NaPaL to fall away, to revolt] in the earth in those days. And also after that, when the *Sons of God* came in unto the *daughters of men*, and they bare children unto them: the same became *MIGHTY MEN*, which were of old, *MEN OF RENOWN*; in the same sense as *Nimrod* is spoken of *Gen. x. 8. He began to be a MIGHTY ONE in the earth* [giving out, as *Simon Magus* did, *Acts viii. 9. that Him-*

^r Bishop *Hall* says on this history ‘That which was the first occasion of sin, was the occasion of the increase of sin: A *Woman* seduced *Adam*; *Women* betray these *Sons of God*: the beauty of the apple betrayed the woman, the beauty of these women betrayed this holy seed.’

^s See *Ainsworth* on the *Pentateuch*.

self was some GREAT ONE ; and bewitched the people from the faith.] He was a mighty hunter [of souls ; see Jerem. v. 26. Ezek. xiii. 18—23. i. e. a seducer of believers] LaPNI IEUE even before the Presence of Jebovah, [that is, before the place of true worship, where the Presence dwelt, ^t or, as it is expressed in after-times, before the door of the tabernacle] as were Corah, Dathan and Abiram, who were likewise stiled men of renown, famous [i. e. infamous] in the congregation ; who strove against Moses and against Aaron before the door of the tabernacle, when they strove against Jebovah, Numb. xvi. xxvi.— And the City of Niniveh, on account of its size, is called the *City of God* ; which last words in the Original are עיר נדילה לאלהים a great City for or belonging to the ALEIM, the true God ; and accordingly the inhabitants of it repented upon the preaching of Jonah, and performed such services, as shewed that they knew what the true religion was, tho' in general they had not practised it.— The reader is now at liberty to judge, whether the *Spirit* or this first motion in the air be called the *Spirit of God*, for the reason which his Lp. has assigned, or that which I have here given.

The *Spirit of God moved upon the face of the waters*.

THE word, translated *moved*, in the original, as his Lp. observes, ^u signifies properly a *shivering* or *tremulous kind of motion*, ^v such as a man maketh, when he speaketh for fear, in which sense this word is used Jer. xxiii. 9. or as a hen [in the english translation, an *eagle*; and so the original signifies] useth when she expandeth her body and wings [*fluttereth*] over her brood of chickens [*over her young ones*]. And therefore this word is elegantly expressive of the vi-

^t This was the *Presence of JEHOVAH* which Cain so much dreaded to be driven from ; Gen. iv. 14, 16.

^u Page 48.

'brating motion of the air;' and as this motion was upon the surface of the *fluid mixture*, termed *Waters*, so it would have the same effect, as the action of the air at present has upon any *turbid water*, that is, it would separate and precipitate the *solids* or *earthy parts*, and permit the *fluids* to slip between, and rise up to the top or *surface*, which therefore would be clear, or consist solely of *water*; on which account it is said, that *the Spirit moved upon the face of the WATERS*, not of the *Deep*, because That consisted of both *Water* and *Earth*. The *Spirit*, as soon as formed, would begin to have this effect; which would be much encreased, when it was put into a *strong vibrating motion*. And as this action was upon the *whole surface* of the *waters*, or rather upon the *surfaces* [PNI] both *inward* and *outward*, so the *solid sphere* of the *Earth* would now properly begin to be *formed*; but could not be perfectly *shaped* or the finer atoms be firmly driven together by the gross action of the *Spirit* alone; some other, more subtle penetrating agent was necessary to effect this. And accordingly *God said*, [decreed, commanded]

Let there be Light, and there was Light.

'The means produced the intended effect, says Mr. Hutchinson, For since there was *motion* or *action* in the *airs*, and consequently a *second cause*; it must mean, Let the *motion*, which I by my power have produced, and by disposition of matter continued among the *airs*, and stiled my *Spirit*, arise to that degree, or put them into that condition I call *Light*.' It has been thought by some, that *Light* was now created: but such seem not to have regarded the distinction made by the inspired Writer between *Creation* and *Formation*; the *matter* of the world was *created* at first and at once; but *formed* by degrees into the present System. 'It is so then (says the judicious Bacon in his *Advancement of Learning*) that in the work of Crea-

tion, we see a *double* emanation of virtue from God: the one referring more properly to *Power*, the other to *Wisdom*; the one expressed in making the *sub-sistence* of the matter, and the other in disposing the *beauty* of the form. This being supposed, it is to be observed, that for any thing which appeareth in the history of the Creation, the *confused mass* and *matter* of heaven and earth was made *in a moment*; and the *order* and *disposition* of that Chaos or mass, was the *work of six days.* Such a note of difference it pleased God to put upon the works of *Power*, and the works of *Wisdom*. Wherewith concurreth that in the former, it is not set down, that God said, *LET there BE heaven and earth*, as it is set down of the works following, but *actually*, that *GOD MADE heaven and earth*, the one carrying the style of a *manufacture*, and the other of a *law, decree, or council.*' Lord Bacon's *Works*, fol. Vol. ii. p. 434. So Becher in his *Physica subterranea*, p. 11. justly observes, ' Nulli legimus, Deum in Creationis principio praeter cælum et terram aliud quid creasse, &c. i. e. We no where read that God in the beginning of the Creation *created* any thing besides the *heaven* and the *earth*; for all other things were *produced* from these. The *heaven* therefore and the *earth* are *properly* said to have bee: *created*; for altho' Scripture afferts, that *God created man also*, yet *this creation* is not to be understood otherwise than *productively* from things *already created*; for *man was made of the earth*; which *God formed and fashioned* into a fleshy substance; which *formation* or *disposition* should rather be called a *production* than a *Creation*: The word therefore to *create* or to *have been created*, when spoken of the *origin* of man, must undeniably be understood of his *more noble part*, namely *his Soul*, which was then *created by God.*' The same may be said in relation to what is asserted Gen. i. 21,

that God created every living creature that moveth, great whales, and creeping things [i. e. Psal. civ. 26. both small and great animals] as such have something in their natures superior to inanimate matter, which was created at first.

' Light therefore [to speak in the words of another author] existed in *substance* before, tho' not in *form*; it was in being, tho' not as light. What was there here to make Light of? Nothing has been mentioned but the chaos, waters, darkness, and spirit. *Darkness* was *Air* in a state of inactivity, *stagnant air*. *Spirit*, air in a state of motion, *impelling air*. *Light* is *air* still, in a somewhat different condition from spirit; in *smaller grains*, or in *atoms &c.*—That *Light* is a *substance* is now allowed; that it is no substance distinct, (as to its constituent parts) from what had been mentioned before, is plain from the expression, *Let there be*, which implies neither Creation, nor Formation immediately by GOD, but the reverse. As nothing was in motion but the spirit, it follows from inference, that from the *spirit* it was formed; and was a consequence of the motion of the spirit, because there was no other agent to make it. Had Scripture meant that GOD now *created* Light, it would have said so. Had it meant that GOD now by his *immediate* power *formed* Light, it would have said so. Something *distinct* from both is expressed, and doubtless was intended. This can be nothing else, than as above; a farther *alteration* in the condition of the air, brought about by what was then in motion."—And that Light is of the *same* substance, consisting of the *same* species of atoms with *darkness* and *spirit*, is plain from fact. Fire or a Focus of Light cannot subsist, but where there is air, as is evident from what is commonly call'd a *Vacuum*; for the air being extracted from the Receiver, the fire immediately goes out. Again; ' hold your hand before a fire, you feel heat before and cold behind: you perceive air press in; out again it must

' come ; annihilated it cannot be ; for if it were, all the
 ' spirit in the universe must long since have been
 ' exhausted, and so there would have been neither
 ' fire nor light, which cannot subsist without the
 ' action of the spirit [consider the immense heat and
 continual draught of air under the torrid zone ;
 that by which the trade-winds are caused : consider
 also the inconceivable quantity of spirit there must
 be for the nourishment of the prodigious fire at the
 orb of the Sun]. The air comes not out however in
 ' the same condition it went in. It goes in cold, and
 ' comes out hot. Heat, we know, pervades and enters
 the pores of the hand, which cold cannot. This leaves
 ' no doubt, that the air is divided or dissolved in the
 ' fire as metals are, and forced out again by succeeding
 ' air or spirit. And why may not air be conceived
 capable of being melted and storkning afterwards,
 ' of growing cold or hot, as it is agitated or quiescent,
 ' as well as gold, lead, and ten thousand other species of
 substances ; what is there in the one to impede, which
 ' is not in the other in some proportion ?' Nay, does
 not air at first sight appear to be far more capable of
 such an alteration, than such solid substances as gold,
 lead, &c. or even water. Again ; ' it is well known, that
 ' Light may be formed in the *condensed Receiver* by rub-
 ' ing too hard bodies together. What doth this do,
 ' but grind the *spirit* or larger masses and grains of
 air, which were too big to pass the pores of the glass,
 ' into *light* or single atoms ; which can easily pervade
 those of glass and also those of the eye ? Light therefore
 consists only in thinning the air, or to speak strictly
 and intelligibly, in dividing or splitting its grains or
 masses ; and then it can, as wheat when ground, run
 thro' the seive, which it could not before. So we are
 as well assured that *light* and *spirit* are the *same* [in
 substance, however different in form] as we are that

' wheat and flour are so.'^w I hope it now clearly appears *what Light is, and how it was formed.*

OUR Author imagines that the Sun was now created : whereas nothing was at this time created : and the sun is mentioned to have been formed after ; of which therefore in its due place. That light may exist without the sun, or that other foci of light may be formed besides that of the sun, is evident enough from common fires, the collision of the air between the stroke of a flint and steel, &c. The seeming difficulty indeed is to ascertain how this action of light could be supported or preserved without fuel or some proper body for the fire to act in : but this difficulty vanishes when we are told (on purpose one would think to obviate the objection) that

God divided the light from the darkness.

Or rather as it is more justly render'd in the margin,
God divided between the light and between the darkness.

THIS act is afterwards attributed to *the lights in the firmament of heaven* (ver. 18) and must therefore mean somewhat more than the bare division of light and darkness by the interposition of the body of the earth ; which also is sufficiently distinguished by the terms *day* and *night*, which immediately follow. The expression is plainly double, and so must the action be, *God divided between the light and between the darkness.* He separated between the actions of each, so that the darkness could not overpower the light, or the light act stronger than for the ends designed ; but just such an interchange be carried on between each, as should answer the proposed intent.^x Had not the focus of

^w Experimental Philosophy asserted &c. the Reader may also see several proofs that *air is convertible into Light, and vice versa* in Penrose's *Treatise on Electricity*.

^x For a fuller explanation of this passage, and the precise meaning of the word IBaDaL [he divided] see *Mos. Principia*, Part II. p. 221—36.

light, now formed by the violent motion of the spirit, been supported by supernatural assistance, it must instantly have been extinguished; as it is in the case of Lightning; where the air rushes in and dissipates it, after a sudden flash, for want of a proper body to retain it. As God therefore had before commanded the light to shine out of the darkness (2 Cor. iv. 6) so he now supported it in its action; perhaps in the same manner as he preserved the Fire which attended the camp of the *Israelites* during their peregrination in the wilderness: Which Support^y of fire in the open air was a demonstration not only to the *Israelites* but to all the neighbouring nations (many of whom worshipped Fire as a God) (that JEHOVAH was the true GOD, the Creator and Preserver of the Universe).

And the Evening and the Morning were the first day.

On which his Lp. thus remarks, ‘ And here I can not but take notice of a very vulgar error, which the bulk of mankind have run into, from a wrong interpretation of this text, in beginning to count their day from the evening. Whereas it is plain from the words of this text that Moses began to reckon his first day from the morning, and not from the evening, when he says, *And the evening and the morning were the first day.* For, since at the Creation, *Darkness was upon the face of the deep*, as soon

^y So the word translated *pillar* [OMUD] signifies. That neither the Cloud nor the Fire that attended the camp of the *Israelites* were in the shape or form of pillars, I think, is evident from what the Psalmist says concerning them. cv 39. *He SPREAD out a Cloud for a COVERING, and Fire* [i. e. he likewise spread out a Fire] *to give light in the night season.* So that the first seems intended to have shadowed them from the heat of the sun, in that burning Wilderness, during day; as the *Book of Wisdom* also intimates, xix. 7. *A Cloud shadowing the camp:* and the other, not only to give Light, but probably *Warmth*, during the cold of the night. And to answer these two respects they could scarcely have been in the shape of pillars or columns.

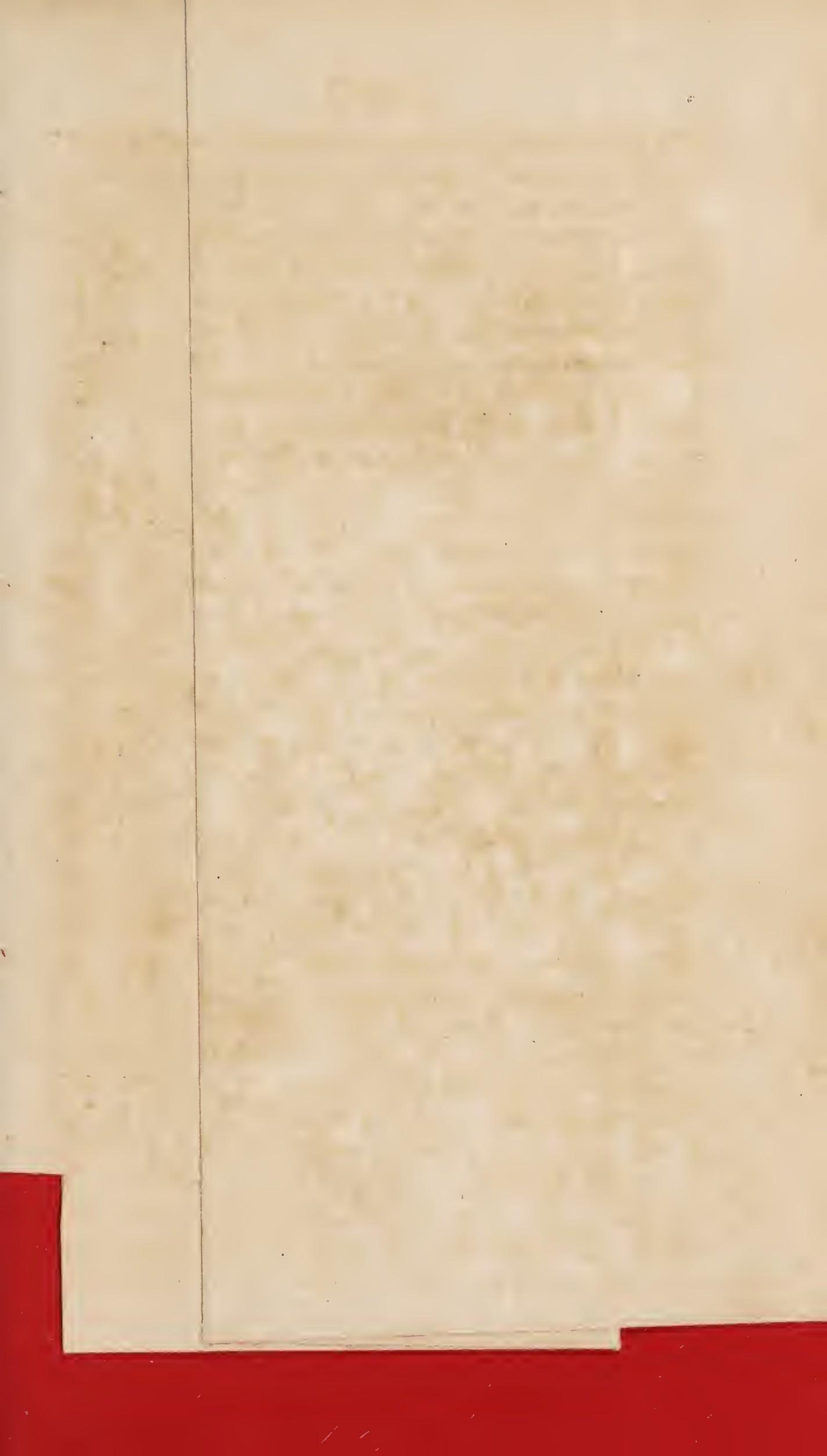
‘ as the sun began to shine, then began the day ; and
 ‘ continued twelve hours, untill evening closed the
 ‘ day ; at which time the night having commenced,
 ‘ continued also for twelve hours more, untill the suc-
 ‘ ceeding morning closed the night ; and thus it was
 ‘ that the evening and the morning formed and com-
 ‘ posed, or finished and compleated, the first natural
 ‘ day, of twenty four hours, by one revolution of
 ‘ the earth round its own axis.’ Now, first ; I must
 own my ignorance to be so very great, that I never
 knew ‘ that the *bulk* of mankind *began* to count their
 ‘ *day from the evening.*’ Some few among the antient
 heathen philosophers asserted, that *Darkness* or *Night*
 was prior to light or day, and made it *the parent of*
their Gods; ^z as in fact it was ; for *the Lights in the firmament of heaven* or the *pure Æther* being *their Gods*,
 these were formed not only *after*, but *out of darkness*.
 And some nations computed *time* by *nights*: But very
 few indeed, by no means *the bulk of mankind*, began to
 count their *Day* from the *Evening*.—And I am afraid
 our Author’s mistake in this, and in what he says after,
 arose from not making a proper distinction between
 Darkness and Light, Day and Night, Evening and
 Morning: *Darkness* and *Light* were spread and dis-
 persed through a vast space in the heavens; *Day* and
Night respected in particular the state of the air on or
 near this globe; the day, that part which was opposite
 to, and on which, the primæval light shone; the latter,
 the contrary: the *Evening* and the *Morning* denoted
 the boundaries of night and day, or darkness and light
 upon and over the surface of the earth; the evening
 denoted that part which was going out of day into
 night; the *Morning*, that which was coming out of
 night into day. And as it was the will of God that

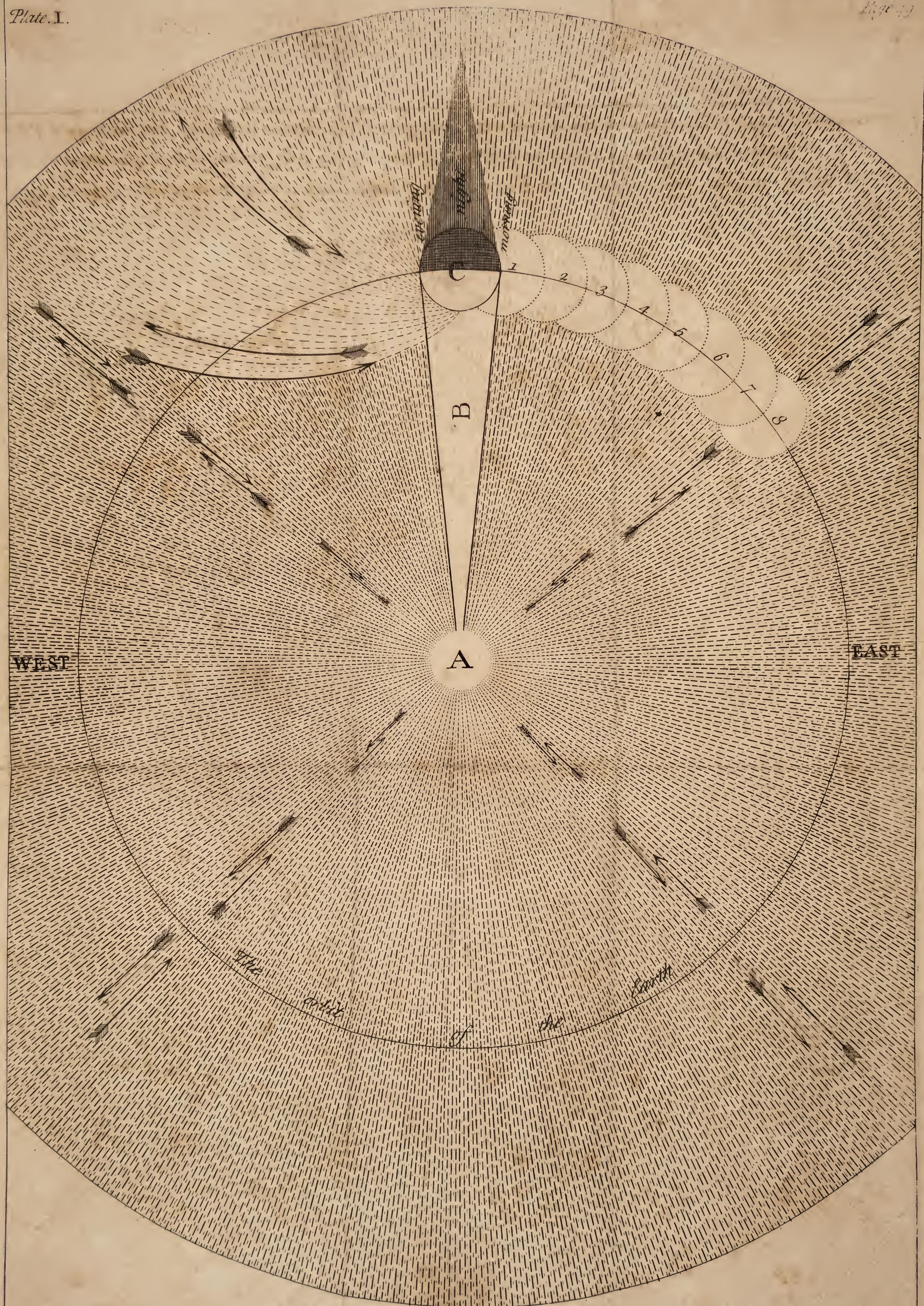
^z See the Verses ascribed to *Orpheus*, and *Hesiod*, as quoted by *Grotius* in his Tract *De Veritate Rel. Christ.* Lib. i. § xvi.

the earth should move the same way with the rest of the planets, (or rather that the planets should follow the motion of the earth, for that was formed and moved first) i. e. from *west* to *east*; so *Moses* could not but mention the evening before the morning, as the earth is carried from west to east; for as the evening-part of the earth or that part of the earth where the evening is, is west; and that where the morning is, is east; so if *Moses* had placed the morning before the evening, it would have implied that the earth had moved first from the *morning*, i. e. from the *east*, to the *evening*, i. e. the *west*; which would indeed have been speaking according to the *appearance*, but not the *reality* of things, consonant to which the mosaic account is strictly written.—And why the half-revolution of the earth upon its axis, viz. from that part which is *now* evening, by the time the same comes under the morning-edge, may not be termed a *day*, as well as *vice versa*, I can see no reason; for either implies the other; and the night is not reckoned.—Our Author supposes that the *Day* here mentioned was not completed ‘till a whole revolution of the earth round its axis;’ had such a day as this been meant, the expression would have been, *And the evening and the evening were the first day*; which would have signified that that part of the earth which was first evening, or where the evening was, had revolved quite round again to the same boundary of light and darkness; but saying that *the evening and the morning were the first day*, is plainly, as it were, stopping in the middle; and can denote only a *half*-revolution.

HAVING thus replied to his Lp. I shall now examine the passage under consideration somewhat more particularly.

THE state of things was such before *Moses* related these words that the *circumstance* of the *evening and the morning being the first day*, appears to have been the





A Representation of the cause & Manner of the motion of the Earth on its axis & in its orbit, as described page 48 - 52.

A. The center or focus of primæval Light. B. A stream of light from the center reaching C. the Earth.

1. 2. 3. 4. &c. denote the successive revolutions of the Earth on its axis & the way it is carried in its orbit, viz from West to East.

natural consequence of the motions and actions before subsisting. Light had been formed, had irradiated upon one hemisphere of this globe ; and there was a *double motion* in the heavens ; —of light issuing from its center —and of spirit and darkness rushing to it ; ^a and any body placed between two such motions could not but be turned round by them ; in the same manner, as if you take a small hollow paper ball, hung moveably upon an axis, and hold it before a strong furnace-fire, the stream of *Light* outwards and the current of *Spirit* or *Air* inwards will naturally turn it round or revolve it upon its axis. And this must have been the case with the earth ; the circumstances are exactly parallel. For however big and weighty the earth may seem, yet neither it, nor any body in the universe, hath any *weight in itself*; for all weight and resistance proceed from the medium in which a body lies or swims ; so a large piece of cork has considerable weight and resistance in the air ; but place it in water, it has scarce any at all, and will yield to the least sensible touch or slightest impulse : so must the earth; ^b especially as the *medium* which *supported* it, was the *cause* also of its *motion* ; as That therefore shifted and moved, the earth (like a ship carried by the current of a river) must of course move with it. As soon then as the Light began to shine on or had reached the orb of the earth, its particles would immediately be rebounded back at some

G

^a This double motion is exhibited in PLATE I. where the *small black strokes* and dots (which are represented as in motion from the circumference towards the center) denote the rectilineal motion of the *Spirit* or gross *Air*; which is farther pointed out by the course of the arrows directed towards the center. The *white ground* or lucid intervals between the black strokes represent the *Light* issuing from the center towards the circumference, pointed out by the arrows directed from the center.

^b His Lp. himself allows, p. 47, that ‘ the Earth, self-balanc’d, hangs in *Air*;’ and so, easily to be moved.

distance from the earth, and other succeeding ones would be equally affected [as a current of air striking against a wall is reverberated, as in the case of echoes]; this continued repercussive motion would cause a violent agitation, heat, or *tumultuousness* in the air; which would make what is called *Day* in the hebrew; that word being derived from one signifying thus much. ^c This rebounded *Light* or *agitated matter*, which makes *Day*, would, as the earth was first impelled thro' the thick air from *west to east*, be left behind on the *western part* in a train, much in the same manner as the flame of a candle, if the candle be moved through the air, is deflected back. ^d This light thus turned off on the western edge, would of course thin or rarify the air there, and so cause the grosser parts or the *Spirit* to rush in or *incline* towards the earth (in order to make up the equilibrium, by filling the *nearest* comparatively *void* space) instead of proceeding on in its *straight-lined* motion towards the focus at the center. ^e And as long

^c IUM *Day* and IM the *Sea* seem to come from the same root EME or IME to be *tumultuously agitated*: and so, the light of the day is repelled from the earth, much in the same tumultuous manner as the frothy waves of the sea, when dashed against the shore, are driven back.

^d This *deflected Light* is represented in PLATE I. on the *western or evening part* of the earth; where a *whiter space* or ground than in the parts adjacent, appears; it being designed to denote part of the stream of light B diverted or turned off towards the west, as above described. The course of this light is pointed out by those *incurvated arrows*, which are engraved upon the *white ground*, and which are represented as moving from the earth.

^e This *inclined motion* of the *Spirit* is designated by those *bent lines* of *black dots* on the *western part* of the earth; and the *course* of the *Spirit* pointed out by those *incurvated arrows*, which are represented as *rushing in towards* the earth. The reader may form a judgment how the *Spirit* deviates from its *rectilineal course*, by observing how *That incurvated arrow*, which is farthest from the earth, *declines* from the *straight-lined course* of those that are near it, and which are *directed* to the *central focus*; whither this present *incurvated arrow* would descend, if it had not found a *readier and easier* passage to the earth; for the reason above given.

as the light issued from its center, and irradiated upon this orb and left a new or successive stream diverted off to the western part of the heavens, so long and so constantly would the spirit rush in gradually on that side, mix and unite itself without our atmosphere, reach the earth or the air near it, turn it upon its axis and carry it on in its annual orbit.—Of this a proof and illustration may be given from the effects of the Sun-beams upon the earth in a calm summer's day, even in our northern region. Early in the morning the air is cold and chilly; when about one quarter of the day is past, is tolerably warm; at noon, is quite hot; and when about the third quarter of the day is gone, (i. e. about afternoon) is still hotter: and this happens not only on account of the greater agitation of light, caused by the reflection of it from the prominent parts of the earth, as from the sides of hills, houses, &c. (which agitation may indeed more immediately affect us, who are surrounded by it and immersed in it, with the *sensation of heat*) but also, because *That part* of the earth where it is *Afternoon*, has *itself* been exposed to a longer and more continued action of the light, than any part that is more *eastern*, i. e. more *towards the morning edge*; and not only this, but the stream of light that shone on the earth during the whole foregoing part of the day, being turned off *westward*, mixes and unites itself with the air over that part of the earth, where it is *afternoon*. On these accounts the air in the afternoon being more exceedingly heated than in any other part of the day, and being turned off, in this attenuated condition, towards the western part of the heavens, would of course give room to the *Spirit* or *grosser air* to rush in *there*, and fill up the *thinner medium*. Hence it is that when the *afternoon* is *past*, and the *evening* begins to come on, the air *proportionably* cools again.

— All this, I say, being the natural *consequence* of the actions and motions before subsisting in the air,

we shall now see the propriety of the passage under consideration; which according to the Hebrew, should be rendered thus, *So there was an evening, so there was a morning, one day*^f.

His Lp. next proceeds to entertain the reader with several philosophical arguments in proof of the motion of the earth; I shall therefore endeavour to entertain him with some Scriptural evidence for this truth; which in this place may be thought necessary by those who doubt whether the Scriptures do really mention the motion of the earth or not, as such will probably imagine, that I have stretched the meaning of the words last under consideration beyond what the inspired writer intended, or even knew himself; since they not only speak of the *motion* of the earth, but, including the context, declare the *cause* of that motion. But I dare say, upon examination, we shall find the Scripture full of this truth, and that what I have asserted in the above paragraph is no more than what is contained in other parts of the Bible. However I must take the liberty to vary a little in some places from the present Translation; for as at the time when the Translation was made, it was commonly thought that the Sun moved, and not the Earth; so the Translators have accommodated the interpretation of the Hebrew words to the then prevailing notions; and yet as a proof, that they were conscious, that the Hebrew words would bear a different rend'ring, they have frequently given the true literal meaning in the margin of the Bible; which therefore I shall make use of as the jufter translation.

To produce then the Scripture-evidence for the above truth. And,—*First*,—it may be observed, that

^f Two *וְ* or *Vaus*, occurring in this manner, denote the *effect* or *consequence*, as the learned reader may observe in many passages of Scripture.

the Scriptures speak of the earth, as of a fit form to be turned or moved, for they declare that it is *round* or *spherical*; so of the first sediment, *strata*; or laying the foundations of the earth, *Prov.* viii. 27: *When he prepared the heavens, I was there; when he set a circle upon the face of the Depth [the fluid mixture]; when he appointed the foundations of the earth.* And *Job xxxviii. 4. Where wast thou when I laid the foundations of the earth? Whereupon are the sockets thereof fastened? or who hath laid the corner-stone [the key-stone of the arch] thereof?* And Chapter xxvi. 10. *He set a circle upon the face of the waters.* — I have transcribed the context in these passages, in order to shew what the *Foundations* of the earth are, and to remove the vulgarly-conceived opinion from these expressions, of the earth's being fixed upon foundations outwardly or on its outside; whereas the foundations of the earth mean the *inward spherical Arch^g or Strata of Stone, laid over the waters or the Abyss which lyeth beneath^h.* These foundations are said to have been, as they really were, *moved at the Flood;* for (*Gen. vii. 11.*) *the fountains of the Great Deep were then broken up;* and (*Psalm xviii. 15.*) *the springs of waters were seen, and the foundations of the round world were discovered at thy chiding, O Lord;* at the blasting of the breath of thy displeasure. Then (*civ. 6.*) *the Earth was covered with the Deep as with a garment; and the waters stood above the mountains:* But at the Lord's rebuke they fled, at the voice of his thunder they hasted away to the place which he had appointed for them; where he has set them their bounds, which they shall not pass, neither turn again to cover the earth. So that neither the Earth, nor its foundations shall be moved [*i. e. dissolved, its parts separated*] any more for ever, *i. e. for the Ever it will endure,* the time ap-

^g See C in PLATE II.

^h *Gen. xl ix. 25. Deut. xxxiii. 13.*

pointed for its duration, or its destin'd period or cycle.ⁱ—*Isaiah* also is very express for the *spherical* or *circular* shape of the earth, xl. 22. *It is He that sitteth upon the circle of the Earth; and the inhabitants thereof are as grasshoppers.*—Secondly,—The inspired Penmen use such phrases as declare they knew that the earth turned upon its axis. So *Judges* xiv. 18. *And the men of the city said unto him on the seventh day, before it (the City) went off towards the Sun.* So the motion was not in the sun, but in the City, or that part of the earth on which the city was built. *Deut.* xxiii. 11. *But it shall be when it [the place, that part of Judea there spoken of] turneth towards Evening.* And *Amos* v. 8. *Who turneth round the shadow of death [the night] to the morning, and darkeneth the day into night.* So the terms used for the passing off of a day denotes as much, *Psalm* xc. 9. *For all our days are turned away.* *Jerem.* vi. 4. *Arise, let us go up at noon: Woe unto us, for the day turneth away.*^k—Thirdly,—The Scriptures mention the annual revolution of the earth: *Exod.* xxxiv. 22. *Thou shalt observe the feast of In-gathering at the revolution*¹ [*the coming round*] *of the year.* 2 *Chron.* xxiv. 23. *And it shall come to pass at the revolution of the year, &c.*—Fourthly,—Not only the motion of the earth, but the *Cause* of that motion or the

ⁱ FOR EVER, LOULAM; ' OLaM, the term for any supposed Cycle or Period, within which any particular revolution is to be completed. This kind of orbit has its supposed terminus inchoationis, from whence its course commences and ascends gradually (from whence the verb OLE, *ascendere*) 'till it arrives at its vertical point; then it circulates in a declivity, 'till it comes again to the terminus inchoationis.' Dr. HODGES's *Misc. Reflections*, &c.

^k The word here, and in two other places under this article, rendered *turneth* (PaNE) properly means successively to obvert or turn up a new face, segment, &c.

¹ The word QUP or IQaP (from whence that translated Revolution is derived) properly signifies to go round in a circle; as the men of war encompassed, went round the city of Jericho, *Josh.* vi. 3.

agents which carry the earth in its orbit are expressly mentioned; as *Psal. xcvi. 11.* *Let the heavens rejoice [move backwards and forwards; the Light outwards; the Spirit inwards] and the earth will revolve.* And *Isai. xl ix. 13.* *Let the heavens shout [irradiate] and the earth will revolve.* And so well known was this motion, and the Cause of it formerly, that the Canaanites in the time of *Joshua* had a Temple dedicated to the Heavens under the title of *Beth Hogla*, i. e. *the House of the Revolver*, or the Agent which circulates the earth in its Revolution, *Joshua xv. 6.* and *xviii. 19.* As the Heathens in their worship had misapplied the Powers of the Heavens, and supposed that they were the only Gods, or that *They* ruled exclusive of the true GOD (who had created, formed, and continued them in their motions) so the *Israelites* frequently attributed to JEHOVAH these Powers; and as a proof that they believed they absolutely depended on Him for their existence, motions, &c. they often spake of the effects produced by them, as if immediately performed by JEHOVAH HIMSELF, as *Psal. xcvi. 1.* *Jehovah reigneth, let the earth revolve.* cl. 1. *Praise Him in the Firmament of his Power.* *lxxiv. 16.* *The day is thine, the night also is thine;—Thou hast made the Summer and Winter* [and yet the natural Agents cause them]. *Jerem. xiv. 22.* *Are there any among the vanities of the Gentiles, that can cause rain? Can the Heavens give showers?* [yes surely naturally; but not independently of GOD, and therefore it follows] *Art not thou He, O Jehovah our God? therefore we will wait upon thee;* [not the Heavens exclusive of thee] *for thou hast made all these things.* Many other such-like passages will readily occur to the reader, which, by this interpretation, appear truly grand and beautiful.—*Fifthly,—Not only the Agents, but the very places where they act chiefly upon the earth, are specified.* I have shewed before, that the strongest impulse is at the *evening-edge*; hence *Prov. vii. 9.* *at the*

blowing-in-of the Spirit in the Evening of the day. Gen. iii. 8. *In the Cool [the Spirit] of the day.*—And as the Air, rushing from the extremities and all parts of the heavens to the fire at the orb of the Sun, must in its passage strike upon the *back* of the earth, and the force of this general action of the air be greatest on the *back part* of the earth towards the *morning*^m (because the force of it on the back part of the earth towards the evening, would be overcome by the *inclined* motion of the *Spirit* on the opposite side)ⁿ so this force is

^m Viz. from that part of the earth marked *Night* to that which is marked *Morning* on the orb C in PLATE I.

ⁿ The inclined motion of the *Spirit* (denoted by the *incurvated arrows* rushing to the earth, in PLATE I) is plainly on the opposite side of the globe to the afore-mentioned Force.

The reader by considering the effects of these two Forces, may have a clear idea of the revolution and motion of the earth. Let us suppose the line which cuts the earth C directly in the middle, and which is the boundary of day and night, to be a *lever*, and the *middle point* of this line to be the *center* on which the lever moves: and let the two forces or impulses of the *Spirit* act on this lever. The *Impulse* on the *evening-edge* will turn up one part [suppose the *left*] of the lever: and the *Impulse* on the *morning* will turn down the other (the *right*); and by and between these two forces the lever cannot but be turned round, i. e. the earth cannot but be revolved. And as the earth is not immovably fixed on any particular point or center, but hangs in the free open air, and the *impulse* on the *evening-edge* is every minute *renewed*, on account of the *new* and *successive* stream of light turned off towards the *western* part of the heavens, and on this account also, the *Impulse* there is stronger than *That* on the *morning-part* of the earth, so the earth will not only be turned round by these two forces, but be *carried forward*, or proceed on in its orbit.

The reader also may here see how by the *direction* and *composition* of these two Forces the earth is kept in its orbit, and prevented from being driven *to* or *from* the sun. The *impulse* on the *evening* or *western* part of the earth (which answers the end of the Newtonians' *projectile force*) will prevent the *impulse* of the *Spirit* on the *back-part* of the earth towards the *morning* from driving the earth down towards the sun: And on the other hand, the *impulse* of the *Spirit* on the *back part* of the earth, which tends to press the earth down towards the sun, the *center*, (and which answers the end of

spoken of by the inspired writers ; and both it and the *evening impulse* intimated by the *Psalmist*, lxv. 8. *Thou makest the out-goings [the agents that cause the out-goings] of the morning and evening to irradiate.* There are two other passages of Scripture which come under this head ; which I shall lay before the reader as paraphrased by Mr. Pike, in his *Philosophia Sacra*, p. 120.

' The one is *Job xxxvii. 3. His light is upon the wings of the earth.* From which place it is clear that the earth has *wings* [i. e. instruments of flying, moving, &c.] and why wings should be attributed to it, unless it did move or fly, is hard to conceive. The other place is in *Job xxxviii. 12, 13, 14.* which should be rendered thus, very little different in words from the present translation. *Hast thou commanded the morning since thy days, or caused the day-spring or dawn to know its place, to take hold on the wings of the earth, that the wicked might be shaken out of it? It is turned as clay to the seal, and they stand or support themselves as a garment; namely, as a garment is fitted to, and is supported by the body that wears it.* In which place we have not only the phrase *the wings of the earth*, but have an intimation that these wings move and carry on the earth in its revolutions.'—Lastly—there is a passage in Scripture, which not only mentions the agents that *turn* the earth on its *axis*, and *carry* it in its *annual orbit*, but which also describes

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the Newtonians' *centripetal force*) will prevent the earth from being driven out of its orbit towards the extremities of the heavens, by the strong *evening impulse*. And thus, by and between these two agents (acting constantly and contiguously upon the earth) the earth will be neither driven to, nor carried from the sun ; but be moved in a line that shall always be a *curve* towards the Sun. The *Newtonian* mathematician will plainly see this, and here he may apply his rules to *real*, not *imaginary forces* ; and which act too in such a *direction*, as will answer the end designed.

the *declinatory* motion of the earth, or its alternate motion from Tropic to Tropic, from South to North, and vice versa, and declares the cause of this surprising phænomenon. The passage I mean is *Eccles.* i. 5, 6. But as it would be scarce possible to give the reader a clear idea of this without an explanatory Cut, and as Mr. Catcott in his *Veteris & veræ Philosophiæ principia* has given such a one, and also a full explanation of every Hebrew word, I must refer the reader thither, p. 43—9. I may here also just observe, that the Canaanites had a Temple to their God, the Heaven, as producer of this *oblique* motion of the earth, under the attribute of *Beth Shittab°*, *the House of the Decliner*, or *Causer of the declination of the earth*.

HOWEVER, it must not be dissembled, that there are some expressions in Scripture which seem to favour the opinion of the *immobility* of the earth. Two of these I have already considered; one, concerning the earth's having *foundations*; the other, that it should *not be moved at any time*, i. e. that its *foundations* should never again be *broken up*, or its parts separated, *moved asunder*, as they were at the *Flood*. Another objection of this kind, and indeed the only material one remaining, is the assertion concerning the *pillars* of the earth, and the manner in which it occurs *Job ix. 6*. But the word translated *pillars* is well known literally to signify no more than *supporters*; ^p whatever therefore *supports* the earth, must be *its pillars*. Now we have seen already, that it is the Fluid of the Heavens, in its two-fold condition of light and spirit, which upholds and sustains the earth; hence is plain what its pillars must be; accordingly we read *Job xxvi 7*. that *God has hung the earth upon BaLIME*, the *constricting or binding Fluid*; the word is compounded of one which denotes the *Spirit [BaL]*, and another which is the *root*

^a *Jud. vii. 22.*

^p See page 46.

of the word *Day* [IME] (so designates the *Light*;) and both of them strongly point out the mixture of *Light* and *Spirit*, which compresses and supports the earth.⁹ But let the disputed passage in *Job* (ix. 5.) speak for itself. *Who maketh strong¹⁰* (as at the first Formation) *the mountains, and they [men] acknowledge it not*; *who* (at the Flood) *overturned them in his anger*. *Who* (i. e. He, God, by his agents, as explained above¹¹) *shaketh the Earth out of her place, and the pillars thereof tremble [vibrate.] Who commandeth* (or has commanded) *the Sun* [a word very different from that which is usually translated *the Sun*; and which properly signifies *the Sun*; or *Fire at the orb of the Sun*] *and it riseth not [springeth not out as the Light doth;]* *and has sealed up the Stars;* *who alone spread out the Heavens* [gave them their expansive power]. It has been thought by some, that this passage relates to so many *miracles* or supernatural acts of God; the first verse indeed alludes to such; but the rest do not; and it is common in Scripture, after mentioning the wonderful power of God in creating and forming the earth at first, and then dissolving it at the flood (which were the two great *supernatural acts* in nature) to proceed to celebrate his wisdom and power in ordaining and preserving the established laws of the universe; which certainly is the case here. For where do we ever read of the *MIRACLE* of God's having *shook the earth out of her place?* Where, of his command-

⁹ MARIUS DE CALASIO, בְּלִכּוֹה est *Constrictio, Colligatio.* BUXTORF, *Constrictio, coercitio*; who speaks of those that derive the word from בְּלֵם to restrain as with a bridle, as the word is used Psalm xxxii. 9. Which kind of action may well be applied to the air, which surrounds and embraces the earth on all sides, and moderates and governs all its motions: And both this and the above derivation from BaL and IME idem ac EME may be included.

¹⁰ OTaQ signifies to be *antient, to endure, to be hard, strong, &c.* Leigh's *Crit. Sacr.*

¹¹ See page 55.

ing the sun, and it doth not rise? Where, of his sealing up the stars? Where, of his spreading out of the heavens? All these are *natural acts, and settled, stated laws* of the System; though very wonderful, and highly deserving our praise and acknowledgement. Truly admirable is it, that That which supports the earth should be in a continual tremulous motion, and yet move the earth regularly, and without any disturbance to its inhabitants! Truly wonderful is it, that the Solar-fire, which is the great cause of the motion of all other things, should itself be immovable; or at least never spring from its orb, and be dispersed! And, that the Stars should be fixed in their stations, though placed in the ever-immoveable expanse of heaven! These are doubtless (as Job says after) *the works of Him who doeth great things, and wonders without number.*

SCRIPTURE being thus full and explicit in describing, not only the *different motions* of the earth and the *directions* of them, but also the *Causes* of each, I cannot here but take notice of the great deficiency of the *Newtonian Philosophy* in this respect, which yet has been thought vastly superior to Scripture on this head. Sir Isaac Newton does not attempt to account for more than the *annual motion* of the earth: Now to undertake to assign forces which shall effect this, without first considering the *diurnal*, appears to me somewhat preposterous; especially if we reflect, that both annual and diurnal motions are directed the same way, *viz.* from west to east: whatever therefore produces the one, in all probability is the cause of the other. But supposing the forces to exist in nature, which Sir Isaac asserts (but I humbly apprehend does *not prove*) *viz.* a *centrifugal* and *centripetal*, yet in the manner they are applied by him, they cannot solve the phænomena of the earth's motion; they answer indeed (tho' here but in part, as will be seen hereafter) to the motion of a stone in a sling briskly whirled about by the hand; the

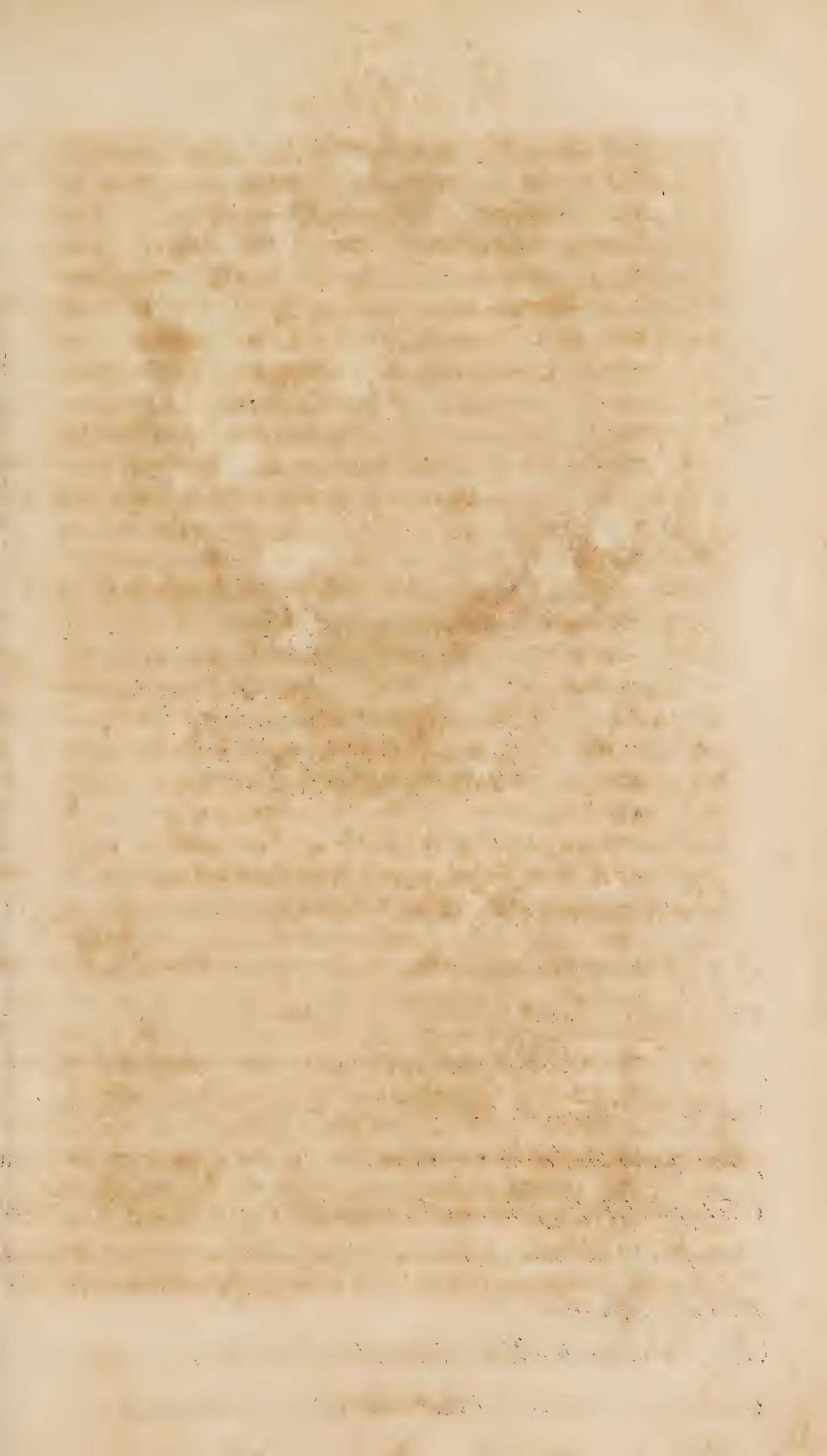
stone in the sling constantly presenting the *same face* or side towards the hand, the center of motion, and *not revolving upon its axis* at the same time it is carried in its orbit: But the earth does *revolve* upon its axis, and is continually presenting a *new* face or segment to the Sun. For a person therefore to pretend to account for the *annual* motion of the earth, and tacitly confess his inability to solve the phænomena of the *diurnal*, appears to me just as absurd, as if a man should profess himself capable of telling the number of *hours* in a *year*, and yet acknowledge himself incapable of reckoning up those which compose a single *day*.

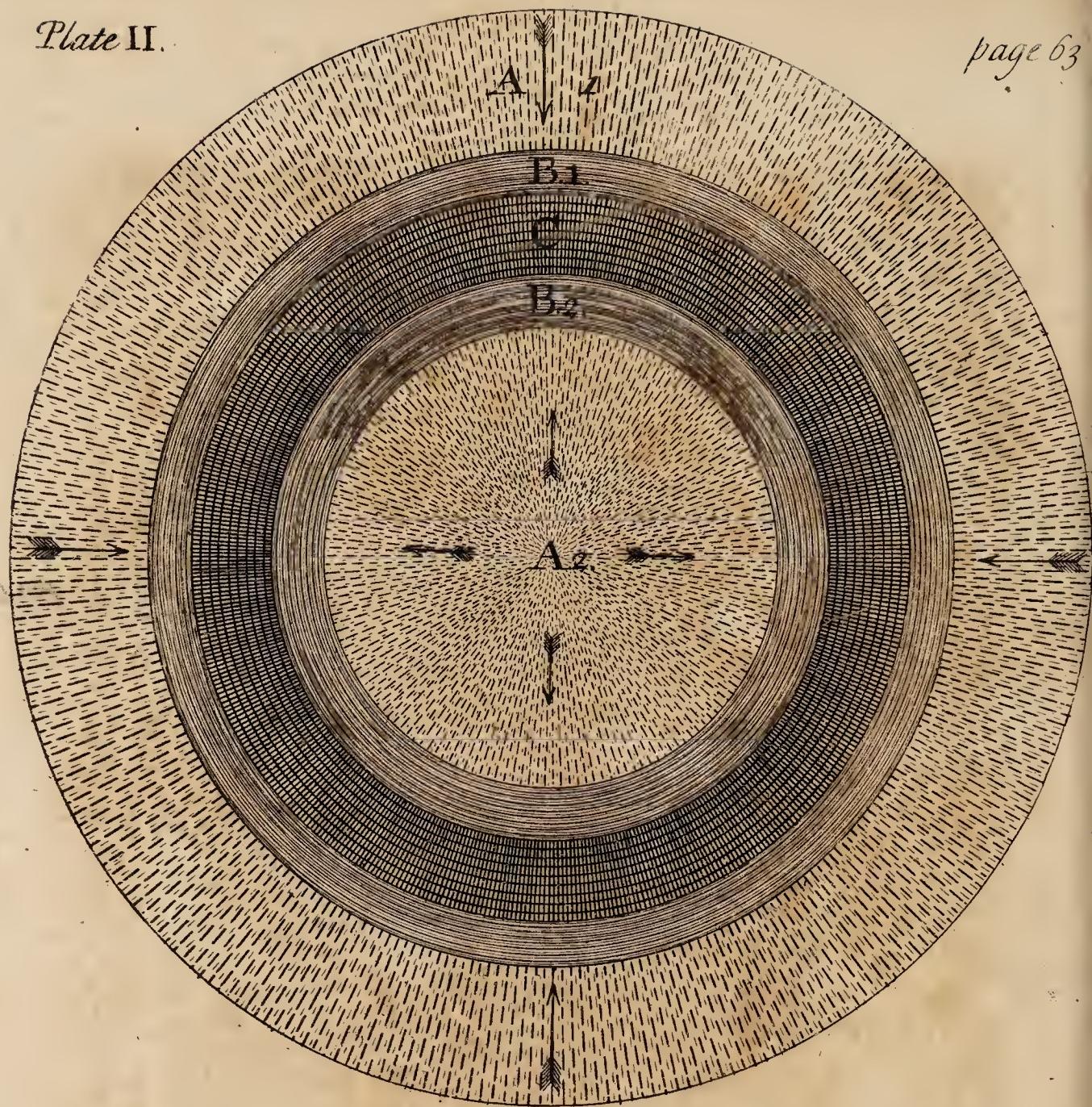
BUT to return to his Lordship. We are now come to page 61 and the interpretation of the 6th verse in *Genesis*. ‘ Having thus far (says he) traced this terrestrial Globe, which we inhabit, and considered it in its first existence; as a ball composed of air, water and earth, encompassing one another in separate strata, according to their several densities; and having followed it in its motion revolving round its own axis, and enlightned by the sun; we come now, in the next place, to consider what would be the natural consequences of all this; in order to find out, if we can, what would be the *natural operations* of the next day’s work of the Creation.

‘ THE first of which would be this: That the sun would, by the attractive power of its beams, exhale a quantity of vapours from the surface of those waters, which expanded themselves over the face of the whole earth. Which vapours thus exhaled by the sun, being, by the minuteness of their particles, made lighter than air, would be driven off from the surface of the earth by the superior weight of the air, and would float in the air or atmosphere, and form themselves into clouds, according to their different densities. And agreeably to this we find that

‘ Moses declares that GOD said on the second day, *Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.* That is, *Let the Heavens which were created in the beginning, now operate as an Expanse, or an expanded Firmament;* for so the original word properly signifies, to support these vapours or clouds, *and let it divide the waters in the clouds from the waters on the earth.* And *God made, or appointed the heavens to be, or to operate as a firmament; and divide the waters which were under the firmament from the waters which were above the firmament; and it was so.* And God called the firmament Heaven. *And the evening and the morning were the second day.’*

ON which I must make a few remarks. First, I would observe, that if the operations of this day’s work are to be esteemed *natural* or the consequences of the laws of nature, then in being, which acted just as they do now (as is asserted also before p. 46) it seems scarce possible that such a quantity of vapours could have been raised from the earth and formed into dense clouds in a single day, or in two days at most, that the waters in them should bear such a proportion to the immense quantity of that Fluid which then covered the whole face of the globe, as that the former should be designated *waters separated from waters, or waters above the firmament, in opposition to those that were upon the earth:* nay, supposing the clouds to have been as large and numerous as they are at present, they scarcely seem worthy of that denomination; much less the few that could have been collected in two days time.—Secondly—I would observe, that had such a quantity of clouds been raised as even to equal the present number (allowing that such a number would suit the above denomination) it could scarce have happened but that it must have rained upon some part or other of the earth. Now we are informed Gen. ii. 5. that God had not caused





- A.1. *The outward Expanse.* } { At first, dark Air on y^e outside,
 A.2. *The inward Expanse.* } { and in the inside of y^e Earth p.36
 B.1. *An orb of water,* separated by the action of the outward Ex-
 panse from the Earthy mass: called the waters under the firmament.
 B.2. *An orb of water,* separated by the action of the inward Ex-
 panse from the Earthy mass: called the waters above the firmament.
 C. *The solid shell of the Earth formed,* between two orbs of water,
 into various concentric strata of stone, coal, &c. by the action of
 the two Expanses.

The Three several orbs B.1. B.2. and C. were at first confusedly mixed
 together, and then called the Earth without form; see p. 35.

it to rain upon the earth, and there was not a man to till the ground; but there went up a mist from the earth, and watered the whole face of the ground. Now whatever time we affix to these words, thus much is certain, that the ground [ADAME, the vegetable mould] had appeared, was fit for tillage, and wanted watering; so that it must have been after the second day's operation, for the dry land did not appear 'till the third day. So that it had not rained 'till then; and even the mist which was raised from WITHIN the earth, was expended in watering the surface, in keeping the ground most to a considerable depth, to prevent its being parched and dried up (for the action of light at this time was extremely powerful, as will be seen hereafter) and so preserving it fit for vegetation.—*Thirdly*,—Moses does not say that the firmament was to divide the waters in the clouds from the waters on the earth, or make any mention of Clouds or that this division was to be at any distance FROM the earth.

BUT—*Fourthly*,—Let there be a Firmament in the MIDST of the WATERS, [the fluid chaotic mass, called Waters before, ver. 2] and let it there divide the waters from the waters. The whole transaction then was upon or in the earth. And the words plainly imply, as others in this chapter do, a Command to the Agents to operate. Light had been formed, had reached and acted upon this globe; and wherever Light and Spirit are, there must of course be a struggle between them, and this struggle would produce an expansion, this expansion a division, and so on. ‘The word for Firmament (says Mr. BATE) RAQIO, explains what the Firmament is; the word signifies, as we see in the margin of our Bibles, Expansion, and the meaning is, Let the Light and Spirit expand and diffuse themselves, and let them press into the mixture, called

'Waters; and let them act in, among, or between the
 parts of it, and drive the solid parts together, and
 thereby make a *separation*, and with the parts se-
 parated a *division* or wall between the waters; so that
 one moiety of the waters shall lie on one side of this
 wall, and the other on the other side.' To explain
 how this was done. The reader will remember that the
 earth was created comparatively *void* (see p. 35,6) or
 with a *large central Hollow* (called, *Job xxxviii. 8.* the
womb of the earth) filled *only* with *air*, as every *hollow*
 place in the earth at present is *filled*. As soon there-
 fore as the light had reached this *central* or *inward* air,
 there would constantly commence a conflict between
 them, or a struggling this way or that as from a
 center; which is obvious to every ordinary capacity
 in the case of a bladder that is flaccid or half-filled
 with air, when held before the fire. The light,
 (which not even the closest-compacted substance can
 deny a passage to) issues forth from the fire, and pe-
 netrates the pores of the bladder, drives itself in a-
 mongst the gross air, which must force That to push
 itself every way outward, and distend the sides of
 the bladder that encloses it.' Thus would the *in-*
ward *Expanse* [denoted by A 2. in Plate II.] or ex-
 panding-air act *upwards* every way from the center
 to the circumference of the Chaotic mixture; while
 the *outward* *Expanse* [A 1] or the light and spirit on
 the *outside* of this globe would act *downwards* on and
 through every part of it. And by these two equal
 and counter-acting agents the *earthy* or *solid parts* of
 the chaotic mass would be driven together into a *spher-ic-al shell* [C] at a considerable distance from the cen-
 ter of the earth, and there be sustained; and as the
 earthy or solid parts would be driven together into a
 close hard shell or crust, so by the same action would
 the *fluids* (see p. 41) be permitted to slip between on
 each side of this crust. Thus would the *shell* of stone

or the Earth be formed between two orbs of water; one orb [B 1.] would cover the outward surface; the other [B 2.] would cover, or by the force of the expanding air from the center, be pressed close to, the inward surface of the earth. Such being the situation of things, it will now be apparent to every one how the earth was *founded upon*⁴ and formed *between the waters*.—And as the shell, or crust of the earth was driven together by the *expansive* power of the air, and formed between two orbs of water, so the *Firmament* acted the part it was commanded *of dividing the waters from the waters*.

AND as the Expansion had this power from the Creator (for He first caused the motion in the, before, dark stagnant air; that motion produced Light; that Light and that Spirit an *Expansion*, &c.) and as it was now immediately under the influence of its *Maker*, and acted according to his directions; so (and to prevent the *Israelites* from imagining it to be a God, and not the work of God, as the idolatrous nations did) Moses adds,

And GOD MADE the Firmament; and divided the waters which were under the Firmament, from the waters which were above the Firmament.

THIS is a further description of things, in order to prevent our mistaking where the *Waters divided*, and where the *Airs dividing*, were, and to prepare the reader for what was to follow. The *Expanse*, as we have seen, acted from *above* and from *below*, and by forming the crust of the earth in the *midst* of the waters, separated the waters from the waters; which waters, thus separated, would be in two distinct orbs; one [B 1.] covering the *outward* surface of the earth, which therefore would justly be designated by *the waters under the open Air, Heaven, Firmament, or Expanse*; in the

fame sense as *the hills* (*Gen. vii. 19.*) are said to be *under the heaven*; and as these waters then covered the whole surface of the earth, they were more immediately *under the heaven*. And as we have seen already, there was a body of *expanding-air* at and round the *center* of the earth, so the *waters* [B 2.] that were directly *above* this *inward Expansion*, i. e. those which were close to the *concave* surface of the earth, would properly be denominated *Waters above Air, Firmament, or Expansion*.—That there was really a body of *expanding-air* at and round the center of the earth (on which supposition the above interpretation depends; and ignorance of this has produced all the difficulty which this part of Scripture has been thought to labour under) is evident, not only from its being asserted that the earth was *created* comparatively *hollow*, or filled *only* with *air*; but from the text under consideration: For (1st.) here is express mention made of *two* Expanses, and the operation of each, as I have shewn already, was *on* or *in* this earth. It is allowed by all, that *one* Expanse acted on the *outward* or *convex* surface of the globe; the other therefore must be *within*, and act on the *inward* or *concave* surface. But (2dly,) had there not been an Expansion from *within*, or from *below*, as well as from *above*, there could have been no *separation of waters from the waters*, or the *shell of the earth* could not have been formed between the *waters*; for had the *outward* Expanse acted *only*, it would have driven the *solid parts* of the terraqueous mass quite down to the center, in the same manner as it now precipitates mud or any earthy solid substances through the *waters* of the sea; and in this case the earth would have been formed as a *solid ball*, or *kernel*, at the center; and all the water would have lain over it in *one united* mass, in the same manner as the atmosphere at present covers the earth. But there was a *Separation of waters from the waters*, by the intervening

shell of the earth, formed by the expansive power of the Air; and therefore there was an inward Expansion as well as an outward.—And as there was an orb of water, separated from the terraqueous mass, by this inward Expansion, so it could be no otherwise distinguished than by being called (as it is) *Waters above the Firmament*, or *Expansion*.—But then a question may be asked, How could this inward orb of water be sustained, or kept close to the inward or concave surface of the earth, and so be prevented from falling down to the center? —I answer, by the same means that the outward orb of water was kept close to the outward or convex surface of the earth, or as the sea is at present prevented from falling down through the clouds (especially at our *antipodes*, to speak as the vulgar would most naturally think) or from returning again to cover the earth (though the earth be revolved so immensely swift on its axis)—all which is effected by the *compressure* of the *Expansion*, or the *Air* acting on the *outward* surface of it; which Agent might as well keep waters *above* it as *under* it; for there is no such thing as *innate gravity*, or *natural* tendencies of bodies to centers, &c. All matter, as our modern philosophers allow, is *dead*, *inert*, *inactive*, quite *indifferent* to every kind of motion; and therefore cannot possibly move, unless impelled; and *which way* soever it is impelled, either upwards, downwards, or sideways, *thither* it must move. Sir Isaac Newton in several parts of his writings speaks of *Gravity* as being no more than *Impulse*, and attributes the *Cause* of it to an *aëtherial medium*, or *subtile fluid*^v; which way soever therefore such a fluid impells, that way must motion be. And with regard to *up* and *down*, or *above* and *below*, every child in philosophy knows that they are only *relative terms*, respecting our situa-

* *Princ. Mat.* 3d. Edit. p. 147, 188, 488. *Optics* p. 323.—29.

tion upon the earth. No such difference can properly be applied to the *inanimate* agents; which must of course act uniformly the same, *up* or *down*, just as they are placed, and have room to exert their power: And as at this time they were differently *situated* from what they are now;—there being a body of expanding-air at the center, as well as one upon the circumference of the earth, so each would produce the same effect on the side it acted against, i. e. *separate* and *support* an orb of water.

WE are now come to the *Mosaic* account of the *third* day's work;

And God said, Let the waters under the heaven be gathered together into one place, and let the dry land appear: and it was so. And God called the dry land Earth, and the gathering together of the waters called he Seas: and God saw that it was good. And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit after its kind, &c. &c.

THE former part of which words his Lp. thus interprets, p. 64, ‘ the next consequence that would arise from the creation of the world, as hitherto described, would be some other of those effects, which would arise from the motion of the earth round its own axis; which beside the formation of night and day, would likewise produce this effect, that the waters, which before were equally dispersed over the face of the whole earth, would immediately begin to quit the poles, and would also run towards the equator or the middle of the earth. Because, as I before shewed, all circular motion, arising from a contest between the centripetal and the centrifugal force, the particles of water being in a fluid state, would be agitated by their centrifugal force to fly off from the center as far as

‘ possible (like a stone in a sling, which, for example, when once put in motion, always keeps the string, as long as it is therein detained, ‘at its utmost stretch). But not being able to overcome the attractive or centripetal force, at the equator, the waters would be there detained, like the stone in the sling, at the utmost distance they could move to from the center of the earth. And by bringing some of the mud along with them, would render the earth of a cycloidal form, that is, would make it something wider at the equator, than under the poles. And by gathering themselves there, in that one place, as it were in a heap, the earth all the way from the poles to the edge of the waters under the equator, would begin to appear, and at length become firm and dry ground. By which means this terraqueous globe would be divided into three parts, two of which would be earth, and would be separated from one another by a belt of waters, under the equator.’

ON which also I have a few remarks to make, before I endeavour to settle the true meaning of the text itself.—*First*,—I would observe, there is no mention made in the text of the waters being gathered together or standing *as it were in a heap*; which phrase occurs three or four times in Scripture; and had such an elevation of the waters been intended here, in all probability it would have been used.—*Secondly*,—His Lp. supposes (and justly) that before the effect, here related, took place, the whole surface of the earth was covered with water, ‘the waters, as he says, were *equally dispersed* over the face of the whole earth;’ and therefore equally *united*, for the word *dispersed* in this place must include that meaning, tho’ to an inattentive reader it may convey another idea, and serve a little our Author’s turn of arguing. If therefore the waters were *equally united* over the face of the whole earth, and so

of course in *one place*, MaQUM AHAD, in *one united place* or *place of union*, I cannot see how collecting of them together *in a heap*, would make them *more united*; for water (as the well-known Florentine experiment proved) when the parts of it touch one another, cannot be compressed into a *closer union*.—*Thirdly*,—His Lp. takes no notice of the *formation* of rivers in this place, which he yet makes the *consequence* of this collection of the waters under the equator, I shall therefore supply that deficiency, by giving the reader his account, that we may see how consistent he is with himself, p. 82.

“ Which channels [i. e. the channels of the rivers in the ante-diluvian earth] may have been originally formed by the water of the sea, when upon the first diurnal motion of this earth round its own axis, the waters flew from the Poles towards the Equator; where they would carry some of the loose mud along with them, and would of consequence leave vacant interstices between the more firm and solid parts of the earth, according to the original designation of the great Author of nature; which might afterwards serve as channels for the subsequent rivers to flow in, and which should all run in one direction, that is, towards the Equator.’ From whence I think it must follow, that collecting *part* of the *waters* (which before in *one united* body covered the *whole face* of the earth) under the equator, and leaving the remaining *part* in *various* and *distinct* channels, on *each* side of the equator (according to our Author’s engraved plan, *Plate 3d.*) would have been so far from *gathering* the *waters* *together* into *one place*, that it would have been *dividing* or *separating* them into *many*.—*Fourthly*,—As, according to his Lp’s hypothesis, all the rivers in the ante-diluvian earth would run from the Poles to the Equator, and in their current thither would tear along with them all that quantity of earth which they excavated for their own channels, so the

earth, not only in respect of its Fluids or the Water, but even in regard to its Solids or the earthy parts, would be raised *higher* at the Equator than at the Poles; and yet he says, that the waters would run from the Poles to the Equator, i. e. from the *lower* to the *higher* ground; which higher ground was also *before covered over* with water: Whereas according to the present laws of nature (which he says were the same then as they are now) water does not move even upon an *horizontal* plane, much less *ascend* upon an *inclined* one.—But (5thly) what has introduced all this false reasoning is, I believe, the modern supposition, that there are such *Forces* in nature, or on and in the earth, as the *centripetal* and *centrifugal*. By the *centripetal*, meaning (according to our Author's definition p. 64) ‘the attractive force, or that force whereby any body is drawn towards the center; by the *centrifugal*,—‘that Force whereby every body, when moved in a circle attempts to fly off in a direction at right angles to the attraction,’ or, as the word *centrifugal* more properly means (and as this force is more generally defined)—‘whereby every body moved in a circle endeavours to fly off or recede from the center of its motion.’ Now supposing the earth to have been modulated and affected in its form and motion, by two such forces as these, the above manner of arguing might have some appearance of solidity and truth. ‘For the greater ease and clearness (to use the words of Dr. Keil, on this article)^w let us suppose the matter of the *earth* first to have been *fluid*. If this matter had no centrifugal force, it would settle it-

^w I chose to examine this gentleman's opinion, because he has expressed himself clearer on the subject than any other I know of, and because he is universally esteemed a great *Mathematician*.—For the quotation see his *Examination of Dr. BURNET's Refutation of the Theory of the Earth*, p. 276.

' self into an uniform smooth (tho' spherical) surface;
 ' but the earth being turn'd round its axis, and all the
 ' parts of it by this rotation acquiring a centrifugal
 ' force, and those at the equator having a stronger
 ' force to recede from their axis than those towards
 ' the Poles; it is evident, that the fluid at the equator
 ' would rise higher than that towards the poles, and
 ' the fluid would settle itself into a *broad figure*; as is
 ' here represented [Fig. 16. Plate viii. *] where AEQ
 ' represents the diameter of the equator, PP its axis.
 ' Now this being the figure which arises from the force
 ' of gravity joined with the centrifugal force, it is
 ' evident, that as long as those two causes continue
 ' to act, this figure will remain the same, and the
 ' fluid will not alter its position nor descend from AE
 ' [the Equator] to P [the Pole]; but that cause which
 ' first brought it into such a posture, will always pre-
 ' serve it in the same. — Let us next suppose this
 ' fluid Spheroid to be changed into a *solid* one, all ex-
 ' cept one channel extended from AE to P , and as
 ' deep as you please: The fluid in this channel having
 ' the same forces to act upon it, according to the same
 ' direction, and in the same manner, will still keep
 ' the same position, without ever changing its figure,
 ' and every part will remain in the same place that it
 ' was in before: it being indifferent to the fluid in the
 ' channel AE P , whether the matter next it be fluid
 ' or not fluid, solid or not solid.' If so, I reply, that
 water, under the equator, even upon a descent, ought
 not to descend; for if the *centrifugal* force there is so
 strong as to raise the *earth*, even the *solid parts* of it,
 as the Dr. supposes, into a *protuberant* form, water,
 which is so easily susceptible of motion (and like all
 other matter, in itself quite indifferent to every kind

* The reader, with a little attention, may easily represent to himself this figure.

of motion, but ready to be moved, either this way or that, according to the greater force) ought to follow the same course, and be raised also, or *mount upwards* towards the equator. But unluckily for this ingenious hypothesis and the whole doctrine of *centripetal* and *centrifugal* forces, there are many rivers near the equator, whose currents *run from* it, inclining towards the Poles; nay, some which take their rise on one side of the equator, pass over it, and then descend on the other; as any person may see that will consult the maps which describe the places that lie between the Tropics. But the Dr. endeavours to reply to this objection, which was first made by Dr. *Burnet*, and undertakes to shew ‘ how water may move from the poles to the equator;’ which it may easily do, he says, ‘ by supposing the surface of the land there to be raised higher than the sea, but always inclining to it ’till it meets with it in *Æ* or the Equator.’¹ But how this can possibly be *supposed*, when he had before (upon his own principles) proved, that the *land* was *higher* at the *Equator* than at the *Poles*; and asserts that it is so, even *under water*.² And the streights to which the Dr. was driven appear from his manner of expressing himself, as ‘ I will next make it appear no paradox, to say, that water may be *made* to run from the Poles to the Equator.’ But this is not proving that it *does* so, or can *possibly* so run upon *his principles*. And again, ‘ It is well known, that (whatever be the figure of the earth) water will not run &c.’ Whereas he should have proved that water (*supposing* the figure of the earth to be the *same* as he makes it, and the *same cause* which brought it into the spheroidal shape *still to act*) would not run &c. And had the Dr. endeavoured

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¹ Examinat. of the Reflections, see p. 278. ² 275.

to prove this upon the same diagram (as he might or should have done) or upon one of the same size with that by which he endeavoured to demonstrate the oblate spheroidity of the earth, the fallacy would have been apparent even to the eye; but he forms a new diagram, in which the diameter of the earth at the Equator remains of the *same length* as in the first figure, and the diameter from Pole to Pole is *much depressed* or *shortned*, so that he had room to raise the ground considerably at the Poles, and yet without elevating of it above the Equator; but even in this case the reader will see (by consulting the figure^a) that the Dr. could not possibly describe (without elevating the Poles at least equal to the Equator) the inclined plane from B to Æ , and therefore is obliged to fall short a little beyond O; as far as which (upon his supposition) the water might run; but then between O and Æ , or the Equator, there is a *great distance*, and all the way upon an *ascent*; which how the water could surmount, I cannot see. —— And here I may just observe, that it is very common with philosophers in this mathematical age to have resource to their lines and figures when they are pressed with any difficulty in nature, and endeavour to engage the reader's mind with a description of things upon paper, which, when examined by the lines of nature, appear very different and unlike the reality. Hence *bare Suppositions* or *Possibilities* have passed with some for *Facts* and *Realities*, and *certain* and *absolute Conclusions* been drawn from *mere probable Premises*. Whereas, Facts are stubborn things, and the laws of nature settled and fixed by the hand of the Almighty; which no mathematician can alter: and if he would use his science aright, he must first learn what the laws of nature are, and then he may apply it, but not before; to act otherwise, is putting the cart before the horse. So

^a Plate viii. fig. 17.

that after all the boasted cry of *Mathematics*, and the certainty of the demonstrations therein, they are but the *lag-end* of Philosophy (according to that stated maxim, *ubi desinit Physicus, incipit Mathematicus,*) and can prove nothing if the *philosophical principles* be *false*.

—And such I take them to be in the case before us; for no one, that I know of, ever yet proved that the earth was *formed* or is *moved* by any such *forces* as the *centripetal* and *centrifugal*; and the instances which are brought to confirm this are by no means parallel, nor do they prove that there are any such forces in nature. The circular motion of a stone in a sling is certainly not caused by such; for when the *centrifugal force* ceases to act, the stone is not drawn by the *centripetal* to the hand, the center of motion, but falls to the earth; and the earth (from what has been said above p. 67.) has no attraction, nor has the stone any innate gravity. And 'till the *Newtonians* will shew us, that there is a string, or some matter or other, by which the earth is tied to the sun, (and so motion caused by contact and impulse) they are not to assume such a parallel as this; much less, supposing at the same time, as many of them do, that the space between us and the sun is *void of all matter*, (except some few thin exhalations from comets, planets, &c. which they suppose can only serve to retard the motion of the earth, &c.)— It is evident from the impulse of bodies downwards to the earth, that the Force which compresses the parts of it together, is *ab extra*, or on the outside of it; and both Scripture and Experiments prove, that the Heavens are the Agents. If therefore the parts of it are kept together, and it is carried in its orbit, (as I have shewed above) by a Force acting on the *outside*, then no instances of the motion of bodies revolving on their axes, the cause of whose motion proceeds from *within* outwards or acts from the center to the circumference, can be applicable to the motion of those which

have the cause of their motion on the *outside*, and which acts downwards to the center. As for example, it does not follow, that because, in twirling a wet mop about upon its axis, the strings thereof are stretched outwards, and pressed towards the middle or equatorial parts, and the water flung from those parts is projected to the greater distance,—that therefore the parts of the earth (which is compressed *ab extra* on all sides) should be affected in the same manner. No; take the same mop and press it on the outside, and its form will be answerable to the outward pressure, and the water will not then fly off. And did any such force affect the earth, as that by which the parts of water are thrown from the mop, we should have very little water upon the earth, or indeed could the earth itself long remain a compacted body; the finest and most distant parts of our atmosphere would be projected first into the supposed free Space beyond them; the grosser would follow; water would pursue them; then the denser fluids; and I believe the solids would not remain long after. To reply to this, that they will be detained by the *centripetal* Force, is *supposing*, but *not proving*; but allowing there is such a Force, as well as the *centrifugal*, yet that Force which acts strongest must prevail, and if it continues to act, must be more and more prevalent upon the body it acts on: now the *centrifugal* force is supposed to act strongest at the Equator; and it is also asserted, that the farther any body is removed from the center of the earth, the less is its power of gravity, and the greater is the *centrifugal* force; if so, the *Fluids* at least, those parts of the earth which are so *easily separable* from it, must yield to the greater Force, and be carried off. As for those who have endeavoured to prove the *oblate spheroidal* shape of the earth from observations made upon different measures of a degree in different latitudes, let any one read their treatises, even that of *Maupertius*; and he

will easily see such a number of difficulties attending the operation, that I believe he will readily confess with Dr. Keil himself, ‘ that no observations can be made so nice, and exact, as would be necessary to determine the point in controversy.’^b—The reader will excuse the length of this section (which might be extended much farther, was this a proper place) the importance of the subject, and the prevalency of a wrong opinion (as I humbly apprehend it is) obliged me to enlarge a little.

BUT to return, and—Sixthly,—endeavour to lay down the true philosophy of Scripture in the case before us. The Command (to the Agents, as above^c) was, *that the waters under the heaven should be gathered together unto one place (or be united) and the dry-land appear.* Whence it follows, that the waters were before separated, or in two places. And the immediately preceding description of the situation of things shews us where and how. There were waters under the heaven or firmament, [B 1. in PLATE II.] And there were waters above the heaven or firmament, [B 2.] and the intervening shell of the earth [C] made the separation or division. The waters under the heaven or open air, (i. e. those which were upon the outward surface of the earth, and which prevented the appearance of the dry-ground) were to be gathered together to those beneath the earth, which was the only place where there were other waters. The manner how this was effected may easily be conceived. As the matter of the heavens would be more and more melted down by the intense fire at the focus of the primæval light, so would the strength of the Expansion be increased, in proportion to the quantity of matter melted, and the degree of agitation; and how great its force must have been on the third day, may be

• Exam. of the Reflections, &c. p. 259.

◆ See pag. 41. 63.

partly gathered from the extent of its sphere on the fourth, which reached by that time the other *orbs*, and even the *fixed stars*, as is evident from verse 17. The Light and Spirit having such an immense sphere of action, and acting very powerfully near the earth (as is certain from the quick growth of *vegetables*, &c. on this, the *third day*) would press strongly upon the outward surface of it; and by the continual and new admission of light, through the shell, to the central air, the *inward expansion* would be vastly heightened and increased (in the manner described p. 64.) and by this means would be made to act more forcibly against the inward or concave surface of the earth. This force continuing to act with increased vigour, would soon crack, cleave, and break the shell of the earth in many places, and so make room for the waters that covered the outward surface to descend, or be pressed down through these cracks; and as the inward air went out, the outward orb of waters would rush in, and supply its place; and so be mixed or united with the *waters that were beneath the earth*. So that B 1. and B 2. would now be joined, or constitute one *sphere* of water at or rather round the center of the earth.^a And thus by the *waters under the heaven* [B 1.] being gathered together to those that were *beneath the earth* [B 2.], where was the *one place appointed for them all*, the *dry-land* would of course appear, and the *Command* be effected. [From this transaction we may also draw another argument in proof of the *inward Expanse*; for had there not been such a space left within the earth, filled only with matter

^a For immediately at the center there would be a *ball* or *kernel* of terrestrial matter, formed from what the waters, in their descent from the surface and passage through the strata of the earth, tore off, and carried down with them into the *abyss*; which abyss, B 1. and B 2. now joined, represent.

that would yield to the pressure of other matter, and shift at its entrance, there would have been no place for the waters to retire to; but there was a place for the waters to retire to, therefore there was such a space as the above-mentioned]. *And God called the Dry-land [that which was first immersed in the waters, and wholly moistened by them, but now prominent above them] EARTH; and the gathering together [the whole collection] of the waters, called he [under the general name of] SEAS.* From the effect here related it is evident, that there is a *vast collection of waters beneath* the earth; for there was an orb of waters there at the first division of the waters (see p. 65. and B 2. in PLATE II.) which was now much increased by the *addition of great part* of the waters that before covered the outward surface of the earth. This *collection of waters* is called also in Scripture the *Abyss or Deep*, and thus remarkably characterised Gen. xl ix. 25. *the Deep that lyeth under*, i. e. the earth: and again, Deut. xxxiii. 13. *the Deep that coucheth beneath*; and it is termed in the second commandment the *Water under the earth*. From this reservoir all fountains and rivers receive their supplies, as he who formed the earth declares by his inspired penman Solomon, Eccles. i. 7. *All the rivers run into the Sea*, [the general collection of the waters, part high up, and part beneath the earth] *yet the Sea is not full*, [does not reach the height of, or run over its shores]. *Unto the place from whence the rivers came, thither they return again.* The reader may now easily see where there lies a store of waters abundantly sufficient for drowning the whole earth, for but *part* of them [*viz.* the orb B 1.] had before covered its whole surface, and will now readily perceive the meaning of that grand prelude to the universal Deluge, *And the fountains of the GREAT DEEP were broken up.* But of this, and other particulars relating to that catastrophe, in its place; only let the reader retain in his mind

what has been already said on this, the *third* day's work of the Formation, and we shall be under no great difficulty in accounting for the *Deluge*.

THE Earth having been thus drained of its waters, and its surface exposed open to the action of the Heavens, the next requisite step would be the *furnishing* and *adorning* it with *plants* and *trees*. Accordingly God said, *Let the earth bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit AFTER ITS KIND* [according to its species; so that *men do not gather figs of thorns, nor of a bramble-bush gather they grapes*, Luke vi. 44. for God hath given to every seed its own body, 1 Cor. xv. 38.] *whose seed is in itself, upon the earth; and it was so.* And the earth brought forth grass, the herb yielding seed after its kind, and the trees yielding fruit, &c. &c. And God saw that it was good. From the expression--of the herb *yielding*, or according to the Hebrew, *seeding* *seed*, and the fruit-tree *yielding*, or according to the Hebrew, *making*, *bearing* *fruit*--it appears that the *Plants* and *Trees* were formed in their utmost perfection and full maturity, replete with *seeds* and *fruit* for the production of a new or successive crop; as is also evident from the prohibition of the *forbidden fruit*.—But in order fully to understand the account of this day's operation, some previous considerations must be taken in. As first, the supposed formation of the *Plants* and *Seeds*, which last, contained in them, according to their species the *stamina* of the *future plant*. All this must have been the *immediate work* of the *Almighty*: no natural causes could produce a *plant* or a *seed*: infinite Wisdom was here requisite. Moses therefore in his recapitulation of and addition to the history of the Formation (chap ii. 5.) expressly acquaints us, that *God had made every plant of the field before it was in the earth, and every herb of the field before it grew*. And we are further informed

(ver. 9.) that it was out of the Ground [ADAM the vegetable mould] the Lord God had made every tree, &c. But even yet there was something wanting; there might be plants and fully seeded, and there might be mould; but unless there was moisture to soften and mollify the parts of each, the action of the Heavens could have no effect; and the natural Agents had not yet acted so powerfully, as to have exhaled such a quantity of vapours from the earth, which might fall back again in the ordinary way of rain and dew; and therefore we are told, *there went up a mist [a moist vapour or steam] and watered the whole surface of the ground, the vegetable mould.* Things being in this situation, the action of the Light and Air upon the moistened ground would of course preserve the grown plants and raise others from the seeds, as these same Agents do at present, by opening and widening the vessels and tubes, impelling the Water, pregnant with vegetable mould, thro' these tubes; secreting and fixing such parts of the mould as are of the same kind with the various parts of the plant; and thus by continual supplies increase it in bulk, and build it up to its perfect form. As this account of Vegetation is confirmed by other passages in Scripture, it may not be improper to produce some of them.—The prime and chief Agent in Vegetation is Light, as Deut. xxxiii. 13. And of Joseph he said, *Blessed of the Lord be his land,—for the precious fruits brought forth by the [light of the] Sun; and for the precious things thrust forth by the [light of the] Moon.* And 2 Sam. xxiii. 4. *The tender grass springeth out of the earth by the clear shining [of the light] after rain.* The materials of which, and the secondary instrument by which, Vegetation consists, are mentioned in the following passages; Job viii. 11. *Can the rush grow without mire [slime or mud?]* Can the flag grow without water? xiv. 8. Though the root

of a tree was old in the earth, and the stock thereof die in the ground: Yet through the scent [RIH, the Reek or Steam] of Water it will bud, and bring forth boughs like a plant. Psalm lxv. 9. Thou, O God, visitest the earth, and waterest it.—Thou waterest the ridges thereof abundantly; thou settlest the furrows thereof: thou makest it soft with showers, thou blessest the springing thereof [i. e. of the earth or mould, which by this means is continually springing out or shooting forth into stalks, leaves, flowers, &c.] And thy Paths [MOGALIC, thy circulating Agents, the Heavens] drop fatness. Again; Hosea. ii. 21. I will bear, saith the Lord, I will bear the Heavens [i. e. cause the primary Agents to perform their part] and they shall bear the Earth [perform their office and act upon the earth]; and the Earth [thus acted upon by the Heavens] shall bear the corn, and the wine, and the oil [i. e. shall produce its fruits], and they shall bear [an]swer the wants of Jezreel. So then it is God, by his Agents, as above, * that (Acts xiv. 17.) gives us rain and fruitful seasons or (Job xxxviii. 26.) causeth it to rain upon the earth,—to satisfy the desolate and waste ground, and to cause the bud of the tender herb to spring forth.—If the reader is desirous of seeing this account of Vegetation confirmed by a sufficient number of Experiments, he may peruse a curious and accurate treatise on the subject by Dr. Woodward, printed in the *Philosophical Transactions*, No. 253. or rather he had better consult it as reprinted, with additional observations, by Mr. Miller in his *Gardener's Dictionary*, under the article of *Vegetation*; referring also to the several articles of *Air*, *Earth*, *Rain*, *Sun*, *Vegetable Statics*; under the last of which he will find an abstract of Dr. Hales's book, entitled *Vegetable Statics*; from which I shall cite a few lines, as they may greatly serve to illustrate and confirm what I have already said

* See Page 55.

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on this subject. The Doctor after having proved that the *Action* of the Sun's light is very great at two feet depth in the earth, argues thus, ' Now so considerable a heat of the sun, at two feet depth, under the earth's surface, must needs have a strong influence, in raising the moisture at that and greater depths; whereby a very great and continual wreathe must always be ascending, during the warm summer season, by night as well as day; for the heat at two feet depth is nearly the same night and day: The impulse of the sun's beams giving the moisture of the earth a brisk undulating motion, which watery particles, when separated and rarified by heat, do ascend in the form of vapour: And the vigour of warm and confined vapour (such as is that which is 1, 2, or 3 feet deep in the earth) must be very considerable, so as to penetrate the roots with some vigour; as we may reasonably suppose, from the vast force of confined vapour in Æolipiles, in the Digester of bones, and the Engine to raise water by fire.—'Tis therefore probable, that the roots of trees and plants are thus, by means of the sun's warmth, constantly irrigated with fresh supplies of moisture; which, by the same means, insinuates itself with some vigour into the roots.'^f And tho' this account of Vegetation be so just and natural, and the Agent by which it is effected abundantly sufficient for the work assigned; yet the same Author (unwilling, I suppose, to recede from Sir Isaac Newton's great authority, tho' his own experiments contradict it) talks in other parts of his Treatise of Attraction and Suction as chief Agents or Causes in the growth of Vegetables; and p. 107. attributes 'the force of the sap rising in the vine in the morning to the energy of the root and stem;' as if it was possible for the roots and stems of plants to act

^f Veget. Stat. Vol. 1. p. 64.

where they are not; they cannot act where they are, unless acted upon; much less can they act in such a manner as to drive the sap *upwards* at a distance from them, even *contrary* to the supposed nature of *Attraction*.—Had but antient Heathen Philosophy (not to mention Scripture) been considered by some writers on the Subject before us, many mistakes might have been avoided, ‘De Natura autem (*says Cicero speaking of the antient Philosophers*) ita dicebant, ut eam dividerent in *res duas*: ut altera esset *efficiens*; altera autem, quasi huic se præbens, ea qua efficeretur *aliquid*. In eo quod efficeret, vim esse censebant; in eo autem, quod efficeretur, *materiam quandam*: in utroque tamen utrumque. Neque enim *materiam ipsam cohaerere* potuisse, si nulla vi contineretur, neque vim sine aliqua materia: nihil est enim quod non alii cubi esse cogatur: sed quod ex utroque, id jam *corpus*, et quasi *qualitatem quandam* nominabant.— Earum igitur qualitatum sunt aliæ *principes*, aliæ *ex iis ortæ*: principes sunt uniusmodi et simplices; ex iis autem ortæ, variæ et quasi multiiformes. Itaque *Aer quoque, Ignis, et Aqua, et Terra, PRIMA sunt; ex iis autem ORTÆ animantium formæ earumque rerum quæ dignuntur e terra.* Ergo illa initia, et ut e Græco vertam, *elementa* dicuntur: e quibus *AER* et *IGNIS* movendi vim habent et efficiendi: reliquæ partes accipendi et patiendi, *AQUAM dico et TERRAM.*²—And as

² ACAD. QUÆS. Lib. I. ‘In discoursing on *Nature*, they divided it into *two* parts; One that operated, or formed; the Other, that yielded itself to this, to be formed into something. They reckoned that the *Power* [or *Force*] lies in That which operates, and the *Matter* [or *materials*] in That which is operated upon: that there is however somewhat of both in each: because Matter could not cohere if it was not kept together by some Power [or Force], neither could there be any Force without some Matter; for there is nothing which is not forced to be somewhere. But what consisted of both these [i. e. the *Power* and the *Matter*] they called *Body*,

there is now allowed to be a close analogy in many things between *Plants* and *Animals*, so I dare say, it will appear to those that will duly consider the subject, that the life and growth of both are owing to one and the same Cause. A Treatise lately printed, by Mr. Penrose, entitled, *A Physical Essay on the Animal Economy*, will, I trust, upon a diligent perusal, satisfy the reader on this point.

THE fourth day's operation is thus recorded. And God said, Let there be Lights in the firmament of heaven, to divide the day from the night; and let them be for signs, and for seasons, and for days, and for years. And let them be for lights in the firmament of heaven, to give light upon the earth: and it was so. Then comes the usual claim, that God was the Author and Former of all. And God made two great Lights, the greater Light to rule the day, and the lesser Light to rule the night, and the Stars [i. e. as more explicitly declared by the Psalmist, cxxxvi. 7, he made great Lights;—the Sun to rule by day, —the Moon and the Stars to rule by night]. And God set them in the firmament of heaven to give light upon the earth, and to rule over the day, and over the night, and to divide the light from the darkness: and God saw that it was good. And the evening and the morning were the fourth day.

and as it were, a kind of concrete or modified Substance.*
Now of these Substances, some are Principles; others Compounds
of them. The Principles are uniform and simple; the Compounds
various and multiform. Thus Air, Fire, Water and Earth are
PRINCIPLES; but the several firms of animals, and all those things
which are produced out of the earth, are COMPOUNDS. Therefore
they called These [the Principles] Elements; of which AIR and FIRE
have the power of moving and operating; but the other two, WA-
TER and EARTH, only a passive kind of power of receiving that
operation, or being acted on.

* As CICERO makes *Qualitas* synonymous to *Corpus*, he cannot mean by it a Quality in the Abstract; but matter with qualities, a Concrete.

ACCORDING to his Lp. the account of this day's operation is little more than a repetition of what had been done on the *first*, or on many days *before* the *first*. For, the *Lights* here mentioned he supposes to have been the *Sun, Moon, Planets and Stars*; the former of which he asserts, was *created* on the *first day^h*, when God said, *Let there be light, and there was light*; 'the Moon, and probably the rest of the Planets' ⁱ on this, the *fourth* day; and the *Stars*, which are mentioned *last*, he says, 'were created millions of ages before this planetary System.^k' But can any one imagine, that *Moses* (even suppose he was not inspired) could write in such an *irregular* manner as this; especially in an affair which he intends as a recital of the *regular process* of the *Formation* of this world by the wisdom and power of the Almighty. But when we consider that the *Spirit of God* gave this account by his servant *Moses*, and directly asserts, that the *Lights in the firmament of heaven* were *all* made on *one*, viz. the *4th day*, with what authority can any person presume to say the contrary? — Had his Lp. but consulted the Original, the whole would have been clear and evident, and the supposed tautology between the *fourth* and *first day's works* would have vanished. The account of the formation of *light* on the *first day* runs thus, *And God said, Let there be light, AUR, and there was Light, AUR.* But the account of the *fourth day* runs thus, *And God said, Let there be Lights, MART, in the firmament of heaven, &c.* It is well known to all conversant in the *Hebrew language*, that the letter **ו** or **M** prefixed to a noun generally denotes the *instrument* or *means of action*; as **MeGeN** signifies a *shield* or *instrument* by which a person *protects, defends himself*; and is derived from the simple verb **GeN**, to *protect, defend, &c.* So in the case before us, First, there was simply **AUR, light**; and this,

as I have shewed, supported immediately by the Power of God :¹ But on the fourth day, God made MART, an instrument or instruments for the light to act in, ^mi. e. he now made the bodies of the Sun, Moon, and Stars ; the action of the firmament having by this time reached the *loose atoms* of which they consisted, and driven them into *solid masses* ; fit in part to retain, and also proper to remit and reflect the light, and by the light thus emitted, *to divide the day from the night, and to be for signs, and for seasons, and for days, and for years, &c. &c.* and so to become (as they are afterwards called, verse 15.) MAURT an *Instrument actually giving light* ; the u or vau in the second place denoting thus much.

THE Earth having been now furnished with Vegetables, fit for the nourishment of Animals ; and the heavenly part of the Macrocosm perfected, fit for the support of their lives ; the next regular act would be, the *formation of living Creatures*. Accordingly God said, *Let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven.* And God created great whales, and every living creature that moveth ; which the waters brought forth abundantly after their kind, and every winged fowl after his kind : And God saw that it was good. And God blessed them, saying, Be fruitful and multiply, and fill the waters in the sea,

¹ Page 45, 6.

^m AINSWORTH, in his *Annotations on the five books of Moses*, translates the word MART ‘ *Lighters, lightsome bodies, or instruments that shew light.*’ And Bishop ANDREWS in his *Lectures at St. Paul’s*, p. 74. on this verse, makes this observation ‘ *OR [or AUR, as above written] is one thing in Hebrew, MAOR is another; Lumen is one thing, and Luminare is another: Light is one thing, and That which giveth light is another.*’

and let fowl multiply in the earth. And the Evening and the Morning were the fifth Day.

As there is such a close analogy between the growth of *Animals* and *Vegetables* (which I have already observed) so the reader will supply the account of the formation of one from what has been said concerning the other. The Substances of each, and the Agents in both cases, are the same; allowing only for the *superior Principle* in *Animals*.^{**} God therefore must first have formed, from a mixture of *mud* or *mould* and *water*, the several species, and have impregnated them with their particular *semina*; and when thus perfectly made, and endued with proper instincts, they would of course *encrease* and *multiply*.

THE former part of the sixth day's work is thus recorded, *And God said, Let the earth bring forth the living creature after his kind, cattle and creeping thing, and beast of the earth after his kind: And it was so. And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth, after his kind: And God saw that it was good.* Which being so similar to the history of the formation of the *fish* and *fowl*, the same comment may serve for both.

ONLY, I must here remark a little on what his Lp. says under this article, p. 70. ‘The expression ‘(viz. *after their kind*) here made use of by *Moses*, ‘and so often repeated by him from the first pro- ‘duction of grass to the last mentioned production ‘of animals, is very remarkable; insisting so much ‘all along, that God having created them, made ‘them, or appointed them, each to produce *after* ‘*their kind*. Whence it appears that *Moses* [i. e. the ‘Spirit of God speaking by his servant *Moses*] was

* See Page 43.

‘ better instructed in this branch of natural philosophy than even *Aristotele* himself, with whom it was a maxim, that the Corruption of one thing was the Generation of another.’ I suppose his Lp. intends this as a compliment to *Moses*, and esteems it a very high one; and lest the reader should think too highly of it, he enters the following *caveat*, ‘ Not that I suppose *Moses* was a better natural Philosopher than *Aristotele*,’ i. e. if properly expressed, Not that I suppose that the *Creator*, *Former*, and *Preserver* of the world could give a better philosophical account of it than *Aristotele*, who was so very stupid and purblind, as to imagine that the Corruption of one thing was the Generation of another; who denied that the world was created;° and who was the corrupter and obstructor of the true antient philosophy;¶ and yet *Moses*, speaking by the Spirit of God, or the Spirit of God speaking by him (which is the same thing) must not be esteem’d equal to this man. ‘ Although (continues our author) it was one of the tenets in the school of *Paracelsus*, as well as of the modern *Hutchinsonians*, that the fundamental principles of all natural philosophy were to be found in the Scriptures.’ I suppose by his Lordship’s classing the *Hutchinsonians* (as he is pleased to call those gentlemen, who admire Mr. *Hutchinson*’s writings, and where they think he is consistent with Scripture and Nature, there gratefully accept the truth, and where they think he is not, there as readily leave him) with some wild writers of the School of *Paracelsus*; he intends to induce the reader, upon his bare word, to believe that the discoveries which Mr. *Hutchinson* has made from the *Hebrew*

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° *Gale’s Court of the Gentiles*, Part ii. Book ii. Ch. iii. Sect. 5.

¶ *Dickinson’s Physica vetus et vera*, Cap. 4th.

Scriptures and Experiments upon Nature are to be reckoned among the chimeras and reveries of such followers of Paracelsus. But as we have already seen how far his Lordship's word is to be taken in his character of Authors from his deficient, nay notoriously false account of but part of Dr. Woodward's Writings, so I hope the reader will suspend his judgment on this point, till he has read for himself; especially as his Lp. does not attempt to prove his position but in part, viz. with regard to the School of Paracelsus; for evidence of which he refers to Ld. Bacon's Advance-
ment of Learning, and that without naming either book or page; but the place intended, I apprehend, must be near the latter end of the Treatise (Vol. II. p. 544. of his Works in folio) where we have the following lines, ‘ But for the latter [i. e. expounding Scripture philosophically] it hath been extremely set on foot of late time by the School of Paracelsus, and some others, that have pretended to find the Truth [not the fundamental principles; which makes a material difference] of all natural Philosophy in the Scriptures.’ And what kind of Truth and manner of Philosophising they pursued, the reader may guess from what is said in the same paragraph, viz. ‘ which they received and pursued in imitation of the Rabbins and Cabalists.’ But how far Mr. Hutchinson was from imitating these, any one that has but dipt in his works, cannot but know.—This Manner of censuring writers or rather a body of men by classing them with another sett, that are confessedly ignorant and whimsical, is, one would think, by the frequency of the fact, esteemed no breach of Charity in this cool, sedate, moderate age; tho' in any other, not quite so moderate, i. e. not quite so indifferent to Truth and Justice, it would be reckoned no less a crime than that of bearing false witness against our

Neighbour.—But we need not wonder at any liberty, which the Author of the Treatise I am examining, may take with *human* writers, when he speaks thus of *Divine*, ‘ Whereas I do not imagine that Moses understood the full force and extent of all the truths that he uttered : But, like the rest of the Prophets of old, (2 Pet. i. 21.) *spake as they were moved by the Holy Spirit* ; so did it also happen unto Moses, who in *this place* [i. e. where he is speaking of things being produced *after their kind*] did not speak either good or bad of his own mind, but what the Lord said unto him, that did he speak.’

[Numb. xxiv. 13.] Here *Moses* dwindles below *Aristotele*, and all the honour that was before given him, is taken away; for now he did not understand what he said, when he asserted that animals were to produce their offspring *after their kind*, i. e. that a lion was not to produce a lamb, or a cow an elephant, but each *after their kind*; which was such a deep mysterious truth, that *Moses* could not understand it, tho’ he was told it by *God*; and yet every child now-a-days, in this self-illuminated age, is well acquainted with it.—But the reason which is given for *Moses*’s ignorance in this respect is very extraordinary, namely, because *he spake as he was moved by the holy Spirit*; which I should have thought the very reason for his understanding the whole of what he said; else I dare say the Spirit would never have spoken to him or by him; For (says St. Paul of prophesying, 1 Cor. xiv. 11.) *If I know not the meaning of the voice, I shall be unto him that speaketh a barbarian; and he that speaketh, shall be a barbarian unto me*: Which is such a character, that I hope no Christian will think of giving the *Holy Ghost*, or even a *Prophet of God*. That the *Truths*, which were revealed to the *holy men of old*, were *well understood* by them, and the *people* of those times, is evident from Isa. xlvi. 18. *Thus saith the Lord that created the heavens,*

God himself that formed the earth, —— I have not spoken in secret, in a dark place of the earth [as the Heathen-Priests used to deliver their ambiguous, confused oracles from holes and caverns]; I said not unto the Seed of Jacob, Seek ye me in vain: I the Lord speak righteousness, I declare things that are right. And of Moses in particular it is said, by way of commendation, (*Exod. xxxiii. 11.*) The Lord spake unto him face to face, as a man speaketh unto his friend. And Moses himself thus declares, *Deut. xxix. 29.* Secret things [i. e. things which God hath not spoken about] belongeth unto the Lord our God: But those things which ARE REVEALED belong unto us, and to OUR CHILDREN FOR EVER; so that both present and future generations are included; and the words spoken are equally to be understood by, and as much concern, one as the other.

THE Heavens having been finished, and the Earth furnished with every thing necessary for the convenience, ease, pleasure and happiness of man, God said, Let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every thing that creepeth upon the earth. So God created man in his own image, in the image of God created he him: male and female created he them. —— And God saw every thing that he had made, and behold it was very good. And the evening and the morning were the sixth day.

His Lp. seems to think it impossible to assign any reason ‘Why the Almighty GOD was pleased to let the Creation [he means the Formation] of this world unfold itself by degrees, in the gradual progress of a six days operation, rather than to produce it all at once in its full perfection, by one almighty fiat.’ Now I apprehend there is no such great difficulty in the case as he imagines. That GOD could as easily have pro-

duced it in full perfection in a moment, as have taken up time in the formation, is certain; but as this was not done, we may justly conclude, that the method he took was highly wise and proper; and as this method could not be on his own account, it must be pursued in condescension to man. And truly had not God made the world by degrees, step by step, or *in a regular progress*, man could have had *no idea* of the *Divine Architecture*, and would have been deprived of one of the strongest barriers against Atheism and Idolatry. How prone mankind always was to worship the *works of God* or the *Creature*, instead of God the *Creator*, no one can be ignorant. Now the most likely and natural way to prevent this Idolatry, and to manifest the Wisdom, the Power, and the Goodness of God in the making of the world (and so secure, by a rational influence, the obedience of man) would be, to *form it by degrees*, and *reveal a true account* of the *Formation of it* to the *first man*; who, when thus instructed, would have in the contemplation of the works of the Almighty, a noble subject for the exercise of his rational faculties,--an inexhaustible source of admiration,--the strongest incitements to gratitude,--and the liveliest memento's of obedience, to his Creator; and doubtless in such exercises as these, *Adam* was directed to employ himself, even in his state of innocence: And indeed in that condition he could have had no other duty; for he stood related to God, only in the capacity of a creature to his Creator.¹ Add to this, that as the Soul of man is confined in a material body, and obliged to take all its *ideas* of the *Spiritual world* from *matter*; so unless it is well informed of the nature of this material world, it could not be in a *capacity* to receive the knowledge of the *Spiritual*; and

¹ See *A Volume of Sermons* by the late Rev. A. S. CATCOTT. Sermon the 1st. on the Antiquity of observing the Sabbath day. p. 16.

even when thus far *capacitated* or qualified [i. e. by being acquainted with the nature of *the things that are made* in this *lower System*] it could not obtain the knowledge of spiritual and immaterial things, unless the Author of both worlds (or one delegated by him) was to point out what objects in the one, resembled things in the other, or what were *emblems* here upon earth, of *Realities* above in heaven. Hence it is that throughout the whole Bible there is not one *immortal*, a mere *metaphysical idea* proposed to the apprehension of man; God very well knowing that he could not receive such; however some men may think they can; but all the ideas therein laid down are taken from *sensible* and *material objects*: whence also it is plain, that this world, like the *Tabernacle* of old, was so framed and constituted as to be *the pattern of heavenly things.*^r Such then being the state of man, and such the design of God in framing this world, it could not but be, that he would instruct his first pupil *Adam*, in every thing necessary to be known therefrom, or open to him a *clear view of both worlds.* So that the first man must have been one of the greatest Philosophers and Divines that ever appeared upon the earth; and the knowledge he received from his gracious preceptor, he doubtless would convey to his children, and they to theirs, &c. Hence all true knowledge among the Heathens; and hence it is, that the higher we go in antiquity, the purer are the streams of it.

THUS the Heavens and the Earth were finished, and all the host of them. And on the seventh day God ended all his work which he had made; and he rested on the seventh day from all his work which he had made. And God blessed the seventh day and sanctified it: because that in it he had rested from all his work, which God created and made.

^r Heb. viii. 5.

‘ God having (says his Lp. p. 73.) in compassion to
 ‘ the *infirmit*y of our nature, which requireth *rest*, set
 ‘ himself as a pattern to mankind, that they may on
 ‘ the *seventh* day rest also from their labours, &c.’
 This gives but a very mean idea of the intent of God
 in instituting the Sabbath; and I apprehend a very
 wrong one; for it is not true even in relation to man.
 I never knew that men were so tired of pursuing their
 ordinary callings during the six days allowed for
 work, as to need *rest* on the *seventh* merely on account
 of *weariness*; nay, too many shew that they can work,
 as hard, if not harder, on the *Sabbath* than on other
 days. And had God ordained the *Sabbath*, ‘ in com-
 ‘ *passion* to the *infirmit*y of our Nature as requiring
 ‘ *Rest*,’ he probably would have instituted it at the
 evening or close of the *sixth* day, and commanded it
 should have been kept *every night*, when the infirmit
 of the body calleth for rest, and not upon *every seventh*
 day, when the refreshment of the preceeding night
 sufficiently invigorates the body for the exercise of
 the future day. But what led our Author into this
 mistake was, I believe, his not attending to the mean-
 ing of the word *Rest* [SaBaTH, whence comes the *english*
Sabbath] which is not opposed to *weariness* but to
work (as an antient Divine observes); for God could
not be weary of his work, *the everlasting God, the*
Creator of the ends of the earth fainteth not, nor is
weary, says the Prophet.* And the word *Rest* denotes
only a *cessation* from *acting*, a leaving off working; so
God on the *seventh* day RESTED, ceased from *operating*,
did not work any more, but entered into his *Rest*, to
signify, that man, after he had *worked* his *short time*,
his *six days*, upon earth, should enter into his *heavenly*

* *Ezai.* xl. 28.

or eternal rest. For, as the Apostle says, *'There remaineth therefore a REST [i. e. another Rest, besides that of the Sabbath, or that which the children of Israel enjoyed in the land of Canaan, after their toilsome passage through the Wilderness or the World] to the people of God [the Elect, the Israel of all nations]. For he that is entered into his rest, he also hath ceased from his own works, as God did from his, let us therefore labour to enter into That [heavenly] Rest.* This was the chief intent of the Sabbath, this the grand lesson it was to teach *Adam*, 'to look upon his continuance in this world, as a state short of perfection; and direct him to look forward to that future state, which should commence, when the great week, the time of this world's duration [probably, according to that antient tradition among the Jews, the six thousandth year; that as one day is with the Lord as a thousand years and a thousand years as one day, so proportionably the same space of time might be expended in the duration of the world as there was in the Formation: which may be the reason, why it pleased God to take up just six days in forming it] should be consummated; a state where there should be fulness [sabo, a seventh, the same word in the Hebrew language emphatically denoting both seventh and fulness] perfection, satiety of happiness, or to speak in the words of the latter Scriptures. (*Psalmi xvi. 11.*) where in the presence of God should be fullness [sabo] of joy, and at his right hand pleasures for evermore. Hence it was that God took so much care to secure both the spiritual meaning and outward observation of the Sabbath, by ordering so many seventhly revolutions of time, to be kept as sacred; as we read of Sabbaths of days, of weeks, of months, and of years, and most remarkably, the grand Ju-

bilee at the end of seven times seven years; when all debts were to be discharged, all estates disincumbered, all persons in servitude to be set at liberty; an emblem and earnest of the great Completion of Completions, that universal deliverance and entrance into a state of perfect liberty and happiness, and possession of the heavenly inheritance, which shall commence, when time shall be no more.^u And hence I may add it probably was, that Moses (by divine direction) makes no mention of the end of the seventh day or does not define it by an evening and a morning, as he had done in relation to the other six days, which consisted of an intermixture of light and darkness: but as This was to be one perpetual Day or consist wholly of light, no end to be affixed to it, so the design of the Spirit of God was to carry the pious reader's thoughts from this transient scene of things to that place and mansion of the Father,^w where there shall be no night, neither any need of the light of the sun; for the glory of God does enlighten it, and the Lamb is the light thereof, for ever and ever, Revel. xxi. xxii.

And God blessed the seventh day, and sanctified it; because that in it he had rested from all his work, which God created and made; which last words are more justly translated in the margin of the Bible, which God created TO MAKE, LOSUT, to act, to operate, to carry on the operations of nature. God having created the atoms, of which this system consists, of proper shapes, sizes, and in due proportion or quantity, placed and disposed them to answer his divine plan; and each being in contact one with the other (as the wheels in a machine) from the center to the circumference, and

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^u Catcott's Sermons, p. 14.

^w Compare this with the Note ^y p. 24.

being put into motion, and that motion continued and directed by the Divine Being himself, 'till the whole was moved and compleated,—God then *rested*, ceased from acting, or did not exert his immaterial power in creating or forming any thing more; and pronounced all he had done, to be *very good*, i. e. that it would answer the end he intended; and so left the *Machine** to act of itself; the parts thereof being fitly prepared and duly disposed to carry on motion, secondary formations, &c. God, I say, having performed thus much, *sabat*, *rested*; which word participating in its root of *isab*, which signifies to *sit down*, denotes that God, after having finished this system, *sat down upon his Throne in Heaven*, as *Lord* and *Presider* over all things in this world; or as the idea is expressed *Psalm lxviii.* *O sing praises unto the Lord; to Him that rideth upon the Heaven of heavens;*—extol *Him that rideth upon the heavens by his name JAH*; i. e. ascribe *SELF-EXISTENCE* to *Him that gave existence to all things and continueth all things in existence*; and who—as a Charioteer or Rider holds the reins and governs the

* It is remarkable, that, in the process of the *Formation* as described in *Genesis*, it is added, after several of the principal parts of the Universe were compleated and at the end of all, *And it was so*; which word so in the Original is *CaN*, and is the root of the verb *CUN*, which signifies to *machine* or to *dispose and adopt things together in such a manner that they shall act mechanically*; and denotes that the *Universe* was regularly formed into a *Machine*. And, the *System* of the world is spoken of under this term in the latter Scriptures, as *Jerem. x. 12.* *He [Jehovah] hath established [MaCIN, machined] the World by his Wisdom.* So *Prov. viii. 27.* *Wisdom speaketh thus in reference to the Formation, When he prepared [BE-CINO, when he machined] the Heavens, I was there.* And of the *Earth*, *Psalm cxix. 90.* it is said, *Thou, O Lord, hast established [CUNNaT, machined] the Earth.* The same word is applyed, in the same *Psalm*, verse 73. to the *human Frame*, *Thy hands have made me and fashioned [ICUNNUNI, machined] me.* The english word *Machine* is certainly derived from the above Hebrew *MaCIN*.

motions of the horses or agents that draw the chariot,— maintains the government of this world, and when he sees proper can stop or divert the course of the natural Agents, and make them act as much, or more, for his glory out of the ordinary way,^y as by permitting them to execute the settled and established laws of the Universe. The reader will indulge me in a few Reflections.

SINCE it pleased GOD to make this world a *Machine*, or ordain that all natural motion should be carried on by material means, it certainly behoves man to be well acquainted with the Agents GOD hath established in matter; especially as the action of matter upon his senses is the foundation of all his knowledge. To discover a concatenation of causes or trace the action of one part of matter on another, and see how justly the effects answer the force of the agents, affords great entertainment to the mind, and manifests the wisdom of the original Former in a manner infinitely above That of acting by occult qualities or methods incomprehensible to man. If the parts of the world had not been formed into a self-moving machine, it is impossible to conceive how GOD could have manifested his power or superiority over matter, so that man might know that matter was not self-existent and independent. But matter being once formed into such a machine, acts constantly and uniformly the same, and cannot but act so; whatever therefore acts otherwise, and can suspend or alter the course of nature, must be *superior* to matter. And if man does not know the real Agents in nature, he will not in many cases be able to tell when or whether GOD interposes or not, and so will not be able to distinguish between a miracle and a natural action; or at least to

^y I shall have occasion to be particular on this article, when I come to speak of the *miracle* of the DELUGE.

see the propriety of the miracle, especially if the supernatural event be brought about by over-ruling the natural Agents. As the machine of the world was compleated *before* the formation of man, and the greatest natural effects are at present produced by agents that are in themselves *invisible* (as light and air are; and were wisely designed so to be, for if we could see them, we should not be able to see any thing else, as they exist between us and every object;) so it is the height of presumption in any man to presume to tell (without Revelation) *how* the world was *made*, or *what Powers* at present maintain the motions therein produced. REVELATION then must be the only source of true knowledge in natural philosophy, and this I have endeavoured to pursue in the above comment on the *Scripture account of the CREATION and FORMATION of this System*; which if the reader will re-peruse, omitting the *controversial part*, he may more clearly perceive the beauty, order, and connection of the *Mosaic narration*.

The END of the First Part.



☞ The Second Part of this Treatise, viz. REMARKS on his Lordship's account of the DELUGE, is nearly finished, and is designed to be printed in due time.